INDIVIDUAL EXCELLENCE VERSUS COLLABORATIVE CULTURE: 
A CROSS-NATIONAL ANALYSIS OF PROFESSIONAL CAPITAL 
IN THE U.S., FINLAND, JAPAN, AND SINGAPORE

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ABSTRACT

The current study utilized the theoretical framework of professional capital developed by Hargreaves and Fullan (2012) and examined school-level professional capital components in the U.S., Finland, Japan, and Singapore using the Teaching and Learning International Survey (TALIS) 2013. To date, there has been little written that uses a cross-national operationalization of the concept of professional capital and utilizes large-scale dataset regarding its components. Therefore, the current study can significantly contribute to the directions for following research on cross-national comparison of professional capital. The study can also inform policy debates about what strengthens teachers’ sense of professional status especially in the U.S.

The empirical findings of the study show the U.S. to be an outlier. The values of two professional capital components (social capital and decisional capital) out of three (human capital, social capital, and decisional capital) were lower than those in the other three countries. The results of hierarchical generalized linear modeling (HGLM) may imply that policy makers and school administrators may need to pay closer attention to the conflict between individual excellence and collaborative culture in the U.S. in order to consider how to build and enhance collaborative school culture at a given school. Based on these results, policy implications, technical concerns and limitations, and further directions for research were discussed.
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A conversation with Y, one of my former students, about 3 years ago

Y: What is the purpose of going to college?

Me: To find yourself, Y.

Y: LOL, you do sound like a teacher after so long!

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Chapter 1

Introduction

Teaching is a complex art with full of intense knowledge and activities (e.g. Eisner, 1985; Darling-Hammond, Wise, & Klein, 1995). However, teaching—as a “mass profession”—is one of the most struggling occupations for its establishment as a profession (Lanier & Little, 1986; Ravitch, 2007; Sykes, 1989). While some countries well sustain their established societal profession system of teaching, the struggle in fact continues in many countries (e.g. Hargreaves & Goodson, 1996). Using the Teaching and Learning International Survey (TALIS) 2013, this study explores the concept of professional capital by Hargreaves and Fullan (2012) in the U.S. by examining professional capital components and how these components are related to teacher perception that their school is a good place to work. By comparing the results with those in Finland, Japan, and Singapore, the current study seeks to understand how professional capital components differently operate and how professional capital components are differently associated with whether or not teachers perceive their school is a good place to work among these countries. In doing so, it suggests that the U.S. teachers may differently feel their school as a good place to work from those in Finland, Japan, and Singapore due to the conflict between individual excellence and collaborative culture.

This topic is critical for several reasons. First, national governments continue to review policies of other nations and adopt promising policies (e.g. policy borrowing or policy transfer) without clear considerations of the cultural or legal implications of many policies (cf. Steiner-Khamisi, 2004). Second, teachers’ status varies considerably among nations, with some national teaching forces being far more professionalized than others (Hargreaves & Goodson, 1996).
Finally, policy borrowing often ignores culturally specific contexts of teachers in a given country, thereby reducing the effectiveness of the policies. In order to understand how policies may be effectively transferred, we need to understand the national structures of professional level capital. In this dissertation, I will combine the most sophisticated international data of teachers available (i.e. TALIS 2013) with the most recent theory (i.e. Hargreaves & Fullan, 2012) and begin to unpack how components of professional capital impact teacher perceptions in the U.S., Finland, Japan, and Singapore.

**Problem statement**

The data from TALIS 2013 by The Organisation for Economic Co-operation and Development (OECD)\(^1\) shows teachers around the world seem to perceive that their work is not much valued in society. Throughout the developed world, teaching has seemed under siege over the past decade. Teachers in many advanced nations suffer from overwork, and some theorists argue that a culture of accountability has seriously undermined the professional autonomy of teachers. Doris Santoro (2011) in her discussion of the moral dilemmas facing teachers, for example, argues that the broader lack of societal support undermines teachers’ ability to persist in the face of difficulties, particularly in teaching the poorest and most underserved students.

Figure 1-1 next page graphically demonstrates the global extent of this problem. Figure 1-1 shows how strongly lower secondary teachers\(^2\) agree or disagree with the statement, “I think that the teaching profession is valued in society” in 29 countries. In almost all the countries except Malaysia, Singapore, South Korea, and Finland, lower secondary teachers on average

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\(^1\) Countries where a certain region participated in TALIS 2013 were excluded. These are Belgium (Flemish), Canada (Alberta), and United Arab Emirates (Abu Dhabi).

\(^2\) See Chapter 3 for the definition of lower secondary teachers in TALIS 2013. The data only refers to lower secondary full-time teachers of reading, writing and literature, mathematics, science, and social studies (cf. Chapter 3 for the details). See Appendix A for the descriptive statistics.
disagreed that they think the teaching profession is valued in society. This result may be more surprising by the fact that among the 18 countries below the U.S. in Figure 1-1, twelve countries hold higher math score than the U.S. in the Programme for International Student Assessment (PISA) 2012 (OECD, 2014a).

![Figure 1-1](image.png)

Figure 1-1. How Strongly Lower Secondary Teachers Agree or Disagree with the Statement, “I think that the teaching profession is valued in society” in 29 Countries from TALIS 2013.

Although the U.S. is above the middle (11th out of 29 countries) in Figure 1-1, the recent spate of education reforms targeting teachers has certainly shaped and also been shaped by distrustfulness of the overall teaching workforce (Ravitch, 2013). The rhetoric used in these
teacher reforms almost automatically and repetitively label all the current U.S. teachers as powerless, vulnerable, and incompetent to what they need to do (Olsen & Sexton, 2009; Ravitch, 2013). The U.S., therefore, may not be unique in having an “image problem” for teaching, but it is clear that the rhetoric in the media is perceived as weakening the professional status of teaching.

In this sense, the rhetoric has been quite problematic; it foments the de-professionalization of teaching even before its professionalization can be established. Teaching in the U.S., as some have argued (e.g. Lortie, 1975/2002), has never moved beyond that of a “mass profession.” Many different historical factors are likely involved in producing this state of affairs, including the early feminization of the teaching force, the lack of university degree requirements in the expansion of mass education, and the “egg crate” nature of school organization. All of these historical and/or organizational trends can be argued to work against systematic development of professional autonomy. Further exacerbating these trends may well be the contradiction that exists between an ideal of individual excellence and an ideal of collaborative culture. Especially in the U.S., it seems there is a heavy focus on individual excellence, rather than on high standards of professional behavior, strong group professional ethics, and other attributes to characterize professional solidarity that would support the development of professional capital.

The U.S. media rhetoric may attribute excellent teachers’ accomplishment to their individual talents. It may also attribute teacher collaboration to their incompetency. One excellent teacher can indeed inspire many students. However, one excellent teacher cannot raise the level of teaching as a profession. By virtue of individual accomplishment, it cannot change the overall standard nor common norms of teaching practice (Stigler & Hiebert, 1999). This is the conflict inherent in an education system that rhetorically contrasts and opposes individual excellence and collaborative activities.
There are several examples of this problematic rhetoric in the recent teacher reforms. For example, the U.S. education policy climate has been geared increasingly towards rigorous teacher evaluation and merit pay based on their performance (Firestone, 2014; Ravitch, 2013). Performance-based systems are characterized by a business orientation in their need of immediately observable results, that is, better student performance ultimately for the national global competence (Hargreaves & Fullan, 2012). However, such environment can trigger individual competitiveness within teachers at a given school. It may not only encourage each teacher focusing more on raising student test scores, but also hinder collective effort to build a good school for well-being of all students. Above all, the most problematic premise of such an inducement is the assumption that the current teachers are willing to take a desired course of action only to gain the extra payment. In other words, the lack of merit pay could be identified as the very reason that the current teachers do not perform their expected outcomes, namely, constant progress of their student’s standardized test scores.

Whereas a capacity building of collaborative school culture takes time, all strategies of the current teacher reforms shown above tend to include expectations for relatively immediate returns by short-term investment (Hargreaves & Fullan, 2012). For example, such a quick supply—e.g. bringing the best and brightest students into teaching with ad hoc training with relatively short-term commitment—will be not only unsustainable, but also detrimental to the current existing workforce, by sending an implicit but malicious message that teaching is an easily managing job for the “talented” with short-term training. Despite of many excellent teachers existing in the U.S., the current teacher reforms not only negate the entire current teaching workforce as if it were “bad,” but also rely heavily on the “improvement” by installing new workforce from outside, which will lead to the likelihood of current credential devaluation (Labaree, 1997). Quick fix sounds attracting; especially what other countries do would sound like silver bullets to solve problems in the U.S. (Hord, 1997). However, it is not ignorable that the
current policy climate can lead to negative consequences to the current teaching workforce (Ravitch, 2013). What is needed is to understand the current teaching workforce and to consider how we can build a long-term professional capital at each school by maximizing empowerment of the current teaching workforce that we have. Therefore, it is critical to understand the dynamics of professional capital—in the U.S. and abroad—if we are to create a policy climate that does not undermine teacher professionalism.

Rhetoric, Reform and Professional Capital

Concurrent with the increase in merit-based teacher evaluation, alternative pathways, such as Teach for America and Teach First, tend to certify teachers with rather short-time training. These alternative pathways entice “the best and brightest” into the field of teaching especially in urban areas, where constantly suffer from the shortage of teachers with only a few-year commitment (Hatch, 2015; Ingersoll & Smith, 2003). Meanwhile, there is also a movement to raise the bar for the entry of teaching workforce (e.g. Mehta & Doctor, 2013). Supporters of this raise-the-bar movement advocate that pre-service teachers will be able to gain research- and theory-based training for subject matters and pedagogical skills by the time they start to teach. Nonetheless, these strategies also consistently portray all the current U.S. teachers as the very target of criticisms and implicitly deliver the negative portrayal to the public. Both the rhetoric (anyone can teach) and the solution (send poorly trained recruits to mostly high-poverty districts) undermines the collective development of a sense of professional identity, as well as blocks the development of a professional body of knowledge that is passed from one generation to another.

Recent reforms encourage a mentality that only the future teaching workforce matters: Many reforms focus on hiring the best and brightest and educating them to effectively put theory into practice. It ignores the substantial wealth of knowledge that the current teachers have, and
also negates the positive effects that broad professional development could have on the existing teaching workforce. It is also critical to appropriately evaluate teachers for their accomplishment, support teachers to gain innovative instructions and new findings from the latest educational research, and improve ineffective teaching practices (Firestone, 2014; Darling-Hammond, 2013). It may be necessary to terminate some teachers due to their unethical behaviors and instructions. However, when we see strong and highly qualified teaching workforce as something that we need to build capacity in the long run, as Andy Hargreaves and Michael Fullan (2012) propose in the book, Professional Capital: Transforming Teaching in Every School, we need to nurture, develop, and sustain the current teaching workforce as professional capital for the future of all schools.

**Significance of this study**

Since the concept of professional capital specifically for teaching was proposed recently, most of the research to explore professional capital has been at the very infant stage. For example, in May of 2015, the first survey instruments specifically to measure school-level professional capital have been constructed by Hargreaves and Fullan. The Northwest Rural Innovation and Student Engagement (NW RISE) Network has been holding multiple meetings for educators and district leaders to discuss how to incorporate the concept of professional capital at schools in remote areas of the Northwest regions (NWCC, n.d.). Internationally, Callingham, Beswick, and Ferme (2015) reanalyzed archived qualitative data from three research projects in Australia to understand how different approaches build professional capital in the context of teacher numeracy. Nonetheless, as of now, there is little attempt to cross-nationally operationalize and analyze large-scale dataset regarding professional capital components. Therefore, the current
study can significantly contribute to the directions for following research on cross-national comparison of professional capital.

Meanwhile, technical concerns through the process of operationalizing professional capital components in this study can also give significant insights for the further development of survey instruments to examine professional capital. As discussed in detail later, these concerns also indicate the possibility that cultural factors may play a significant role for teachers to perceive how often teacher collaboration happens, what factors make teachers feel their school is good. For example, beyond the simple comparison whether a given culture is individualistic or collectivistic, there is a major difference between how teaching is recognized in the U.S. and Japan (Chapter 2). Although these concerns are part of limitations of the current study, they can contribute to the further development for the quest to consider the measurement and operationalization of professional capital as well.

**Organization of the following chapters**

Given that de-professionalization of teaching is a critical issue, Chapter 2 first explores the historical contexts of the sociology of professions and professionalization of teaching specifically in the U.S. The literature review on the historical contexts of the sociology of professions focuses on how previous studies define a profession, who is considered as a professional, and how professionalization had occurred. As is seen, the sociology of professions hardly includes teaching as a profession despite that the various theoretical debates have been done in order to understand the rise of professionalism since the end of eighteenth century. For this reason, this section focuses particularly on the commonalities in terms of what critical components that a given profession should have are across different perspectives, rather than decomposing the fact that different theoretical perspectives give some different contextual
backgrounds for the establishment, development, and sustainability of professions. Based on two commonalities—i.e. theorized knowledge and technical autonomy—as the core to establish a profession, the literature review on the historical contexts of professionalization of teaching in the U.S. then seeks to understand why teaching is less likely to be recognized as a profession and why professionalization of teaching did not pass the tipping point in the U.S.

The following section introduces the concept of professional capital proposed by Hargreaves and Fullan (2012). It shows how much it is critical to raise and foster professionalization of teaching at a school level. The keys are: Professional capital is transnational and consists of three capitals—human capital, social capital, and decisional capital; and the concept of professional capital indicates that professionalization of teaching should be fostered through the process of capacity building over time. As Hargreaves and Fullan (2012) argue, this section specially sheds light on school-level collaboration—i.e. building collaborative school culture and professional learning communities (PLC)—as the most critical component to nurture collective responsibility and thus to cultivate school-level professional capital.

As mentioned earlier, however, the conflict between individual excellence and collaborative culture in the U.S. may generate some friction during the process of nurturing school-level collaboration to enhance professional capital at a given school. Compared to the classic definition of profession based on the sociology of professions, therefore, we may need to situate teaching as a unique profession. Building collaborative school culture should never mean that an individual teacher is too weak to be a professional. Rather, teaching is a profession which requires comprehensive but versatile teaching workforce, in order to deal with diverse, time- and context-sensitive issues for the pursuit of public good. In this sense, the recent U.S. teacher reforms, which excessively invest teachers’ individual excellence, can hinder professional capital to be fully nurtured. In order to cross-nationally compare professional capital, Chapter 2 concludes by giving the overview of teaching as a profession in three high-performing countries,
namely, Finland, Japan, and Singapore. The selection criteria of these countries for this study was based on three national indicators—i.e. PISA 2012 scores (OECD, 2014a), and Power Distance Index and Individualism Index (Hofstede & Hofstede, 2005) as discussed in detail later. This section focuses on cross-national differences in the basic status of teachers and structure of education system related to teaching as a profession in Finland, Japan, and Singapore compared to the U.S. Finally, based on the comparisons of teaching between the U.S. and Japan by Shimahara and Sakai (1995) and Stigler and Hiebert (1999), it also touches upon that there is a possibility that the social construction of teaching can vary significantly across different countries.

Chapter 3 starts with addressing two research questions in order to cross-nationally analyze school-level professional capital components and their relationships with teachers’ individual perception of their school to be a good place to work in the U.S., Finland, Japan, and Singapore. The following section provides the information of the data and analytical sample, which consists of a brief overview of TALIS 2013 and the explanation of the analytical sample for this particular study. The next section explains how to operationalize the three professional capital components and other variables used in this study. These two sections include the step-by-step procedures of how the analytical sample was selected, how the variables were retrieved, and how the latent scales from TALIS 2013 were computed. Finally, the last section shows the statistical procedures to answer these research questions including the information on missing data, weighting variables, computing intraclass correlation coefficients (ICCs), and constructing a two-level hierarchical generalized linear model (HGLM).

Chapter 4 presents the descriptive statistics, the ICCs of the three professional capital components, and the results from the cross-national HGLM among the U.S., Finland, Japan, and Singapore. The empirical findings of the study show that the U.S. is an outliner. For example, the values of two professional capital components (social capital and decisional capital) out of three
(human capital, social capital, and decisional capital) were consistently lower than those in the other three countries. Especially for social capital, the U.S. has low value with little between-school variation. Although the results of hierarchical generalized linear modeling (HGLM) show a structural feature of social capital at a given school was not statistically significant in all the four countries for teachers to perceive their school as a good place to work, a holistic feature of social capital at a given school was not statistically significant only in the U.S. These findings, as discussed in more detail in Chapter 5, is critical for assessing how well teacher-related policies may be imported into the U.S. Also, only the U.S. had a significant relationship between poverty and teacher perception of their school to be a good place to work. Further comparisons give some insights on a possibility that a good place to work for these teachers might not necessarily be similar across these countries, and that both the culture of teaching and the socio-economic realities in the U.S. present significant barriers to further professionalization of teaching.

Chapter 5 first summarizes the empirical findings of the study. It then once again touches upon the importance of collaborative school culture to establish teaching as a profession. The HGLM results indicate that in the U.S., poverty may be the first and most significant hurdle to overcome to nurture professional capital at any given school. The HGLM results imply that policy makers and school administrators may need to pay closer attention to the contradiction that exists between an ideal of individual excellence and an ideal of collaborative culture in order to consider how to build and enhance collaborative school culture at a given school in the U.S. This chapter then provides policy implications regarding nurturing and developing the U.S. current teaching workforce by maximizing school-level professional capital in the long run. Technical concerns and limitations for the operationalization, measurement, and interpretation of professional capital components for cross-national analyses, and further directions for research are also discussed.
Chapter 2

Literature Review

Sociological analysis of professionalization

Professionalization as a sociological concept emerged at the end of eighteenth century (Larson, 1977; Parsons, 1939). Whereas knowledge and power used to be restricted to a handful of upper-class elites before the Industrial Revolution, the term professionals came to refer to established groups of people who have specialized knowledge and expertise with technical autonomy that enabled them to legitimately make decisions and exercise judgment by applying their knowledge and expertise to a specific case. Distinct features of a profession from other occupations is that it has been given the right to control its own work and recognized as they have the right from the society as well (Abbott, 1988; Freidson; 1986). Profession is a concept of the new modern world to establish a status through occupational roles and obligations beyond the social structure of those days by connecting between knowledge, practice, and power (Abbott, 1988; Freidson, 1986; Larson, 1977; Parsons, 1939).

The sociological approach to examining professions has gone through major theoretical transitions (see Abbott, 1988; Macdonald, 1995; and Saks, 2012 for the details). For example, the functionalist view sees professions as natural outgrowth of the structure for the control based on expert-client relations (e.g. Parsons, 1939). Focusing on the process of how a profession gains a power in the competitive market and retains its status by building its knowledge and autonomy, Larson (1977) argues professionalization can be seen as a phenomenon that rose from the struggles of non-elites to secure their positions by using formal education and certification system. For Larson (1977), the middle-class struggle is a driving force for professionalization. Therefore, the pursuit of collective mobility, establishing the status of professionals per se, is the
key. In this sense, the professions need to be rather strategically institutionalized—e.g. by providing systematic trainings at accredited higher education institutions and formal testing registration and licensing from nation-states. Through those relatively modern standardization processes, professionals needed to distinguish themselves as officials, exclude non-officials from the process, and establish and sustain their status as experts (Larson, 1977).

When we see profession as a generic concept rather than a changing historic concept, as Freidson (1986) suggests, the establishment of a profession is to gain a certain amount of status through specific occupations no matter what reasons are behind it. A narrow meaning of professions—Freidson (1986) argues a broader definition can include all kinds of occupations—characterizes that the abstract knowledge is taught in universities, licenses with specific requirement for the credentials are issued, their practices are standardized, and their own system of autonomy and monitoring is established. In addition, Freidson (1986) sees professions are responsible for rendering public services. Credentials issued by authority such as nations and states as well as public reputations are crucial because such credentials legitimize their tight control of the entry and membership. Their formal commitment as professionals to the society, as Freidson (1986) highlights, makes their professions symbolize and codify what their *raison d'être* is for the society. Meanwhile, Abbott (1988) argues professions is a further more complex form as a system existing within the layers of interrelations. The way to control knowledge and establish how the knowledge should be applied is influenced by above the system, such as external judiciary forces, and by below the system, such as conflicts and struggles within the profession. In order for a given profession to dominate outsiders as well as insiders who attack their control, competition is one of the most crucial features to conceptualize the profession. Because of the complexity of professions as a system, Abbott (1986) argues the patterns of professionalization varies by case.
Macdonald (1995) reviewed the sociological literature on professions. He summarized the changes over time in the different schools of thought. He developed the concept of “professional project” which was, in part, inspired by Larson (1977). In the book, the Sociology of the Professions, Macdonald (1995) conducted a cross-national comparisons of professions of law and medicine in England, Germany, France, and the U.S. and found that how a profession had achieved social closure—as a critical component to retain the knowledge, power, and thus their status for a given profession—was quite different based on national and cultural contexts of these countries. Meanwhile, the contemporary conceptualization of professions takes professionalism as a code used in discourses to promote a given occupation to the public, rather than profession as an occupational value (Evetts, 2011). In this sense, as Evetts (2011) argues, professionalism does not come from within but rather from above, by employers and managers to control employees in recent service organizations. Therefore, professionalism can be seen as “a disciplinary logic which inscribes ‘autonomous’ professional practice within a network of accountability and governs professional conduct at a distance” (Fournier, 1999, p.280). The most distinctive difference between managers and professions is that managers do not have to hold the knowledge and expertise that grant group members credentials as professions. If the knowledge and expertise is recondite, managers may need to play a role only to support professionals to execute their work. However, if not, the function of managers—organizing work and assign people to tasks—may make possible for them to take over and control professionals. For example, the structure of schooling can be applicable to this latter case. Recently in the U.S., for example, superintendents, school administrators, and principals have been highly trained as “professionals” to manage districts and schools. For this reason, the establishment of teaching as profession has been hampered by the fact that managers are legitimized to control teachers whose accumulated knowledge and expertise are not necessarily seen as recondite (this conflict will be discussed in detail later). From organizational perspectives, therefore, the recent
conceptualization of professionalism has been drastically changed; managerial and professional fields are distinct, therefore, there are various conflicts between them (Noordegraaf & Schinkel, 2011). As Evetts (2011) warns, the recent change can be seen as a threat to professions in terms of how much they in fact hold knowledge, the power that accompanies with it, and technical autonomy and discretionary judgment.

Along with the advancement of modernization, service firms and organizations have become larger, their roles have become complexed and multilayered, and their range of work has been broadened. Because of this complexity, it is harder to define a profession based on unified features (e.g. Saks, 2012). In response to a growing body of research on organizational contexts, neo-institutionalist theorists such as Muzio, Brock, and Suddaby (2013) argue that professionalism is an institution in which professions “act and are acted upon by a myriad of social, economic, technological, political, and legal forces” (p.700). Scott (2008) also conceptualizes the modern professions as institutional agents, who are strategically “creating, testing, conveying, and applying cultural-cognitive, normative, and/or regulative frameworks that govern one or another social sphere” (p.233). Based on the contemporary conceptualization of professions, however, professional groups may not necessarily fully exert jurisdiction as assumed in the past literature; the boundaries among different occupational groups and the boundaries between professional groups and managerial entities are in “a state of on-going flux” (Saks, 2012, p.6). Nonetheless, through the comparison of the definition, process, and even intentions of professionalization in various ways, there are two factors—acquirement of theorized knowledge, and technical autonomy and discretionary judgment—as the very base for professions to establish and secure their positions.

In sum, there are different perspectives on how professionalization has been developed and established based on different contextual backgrounds. The recent change in the organizational structures surrounding professions causes conflicts between managers and
professionals. However, in the previous literature on sociology of professions, teaching has been hardly treated as an example of a profession. Nonetheless, the literature review on the historical contexts of sociology of professions thus far shows two essential features to develop and sustain a position as a profession: Professions are a collective entity viewed as distinctive and formalized with specific technical knowledge and a range of discretionary authority to make decisions within their specialized field. The following sections explain the details about these two commonalities and also argue why professionalization of teaching in the U.S. has not been well established in the later section.

**Theorized and abstract knowledge and the power it holds**

Doctors and lawyers are a good starting point to think about what professional status looks like because of the established knowledge systems uniquely linked to their occupations. Doctors and lawyers receive respect from most people in society not only because they are certified professionals, but also because these professionals are recognized as the very survivors from highly competitive environment to gain all the medical and judicial knowledge and professional trainings from granted institutions. Furthermore, they are recognized as professionals because it is only they have the legal authority to engage in curing disease (e.g. practicing medicine) and arguing legal cases (e.g. practicing law) based on their certification by autonomous review boards within each profession. As Abbott (1986) especially highlights, the established knowledge enables a given profession to control who has the power and privilege to access to the system of knowledge and how to sustain its status as a profession. The knowledge is then “only what the occupational group can annexe and hold on to” (Macdonald, 1995, p.186). In this sense, academia plays a critical role. For example, Larson (1977) explains that university professors sustain their power and status as a prestige profession because universities have power to
construct knowledge. That is, their professorial authority and autonomy has been well sustained overall unlike that of K-12 teachers.

Freidson (1986) situated profession as a group of human beings who bridge between knowledge and power. Formalized knowledge used to be the province of elites, but professionals have been added as the agents of such knowledge. Freidson (1986) articulates that there is a huge paradox inherent within this process of professionalization because “while the institutionalization of knowledge is a prerequisite for the possibility of its connection to power, institutionalization itself requires the transformation of knowledge by those who employ it” (p.xi). As shown in the following section, the difference between those who theorize and institutionalize knowledge (e.g. education researchers in higher education institutions) and those who actually take into practice (e.g. K-12 teachers) can be detrimental to establish the professionalism of practitioners (Labaree, 1997). In the case between education researchers and K-12 teachers, for example, education researchers in higher education institutions made their efforts to establish professionalization of teaching during the 18th century by conceptualizing the knowledge and art of teaching, they initiated their research seeking *counterexamples* of what teachers actually practiced at that time. It was necessary to build the theorized and abstract knowledge system to establish the professionalization of teaching, but at the same time, it resulted in the denial of what K-12 teachers had done throughout the times. It is this paradox that the concept of professional capital seeks to transform by reexamining the connection between education researchers and K-12 teachers as well as by giving empowerment for the current teaching workforce.

In sum, who establish the knowledge system, who convey the knowledge, and thus who are the agents of knowledge as professionals is a critical question to think about who really has the power of the knowledge. In this way, formal knowledge is frequently accompanied with functional rationalization closely related to capitalism (cf. Freidson, 1986), therefore, the use of formal knowledge is not necessarily democratic. Similar to Jürgen Habermas, Freidson (1986) did
not see the knowledge itself as a dangerous threat to democracy. However, Freidson (1986) emphasizes the significance of the agents of knowledge as gatekeepers with strong ethics and commitments because undemocratic exercises of power are always possible to justify any political agenda favorable to a certain group of people.

**Technical autonomy and discretionary judgment**

Professionals make decisions in response to a specific issue related to their technical field. In order to sustain their high status to execute this discretionary judgement, profession theorizes, normalizes and standardizes their abstract knowledge, controls the entry and membership of the profession, and restrains the access to the knowledge. Above all, profession strives for and secures their degree of authority for decisions based on their knowledge system. As Parsons (1939) expresses as “specificity of function” (p.460), this form of authority is unique because their technical competence relies upon their specific sphere of knowledge. That is, professional employees have technical autonomy, or a certain degree of discretion and judgement within the work they do. They are autonomous but not necessarily able to control their autonomy beyond their field; market economy is not controllable, and the organizational structure and function may be beyond their professions.

In this sense, teachers seem to have technical autonomy and discretionary judgment within their classroom once the classroom doors are closed. Currently, however, this degree of “freedom” has been interpreted in a negative way. Rather than this as their technical autonomy and discretionary judgment as professionals, it implies distrustfulness towards teacher that they are not good enough to pursue student accountability of their classrooms based on the logic to call for teacher reforms in the U.S. Based on the sociology of professions discussed above, reasons can be that (1) teachers are not recognized as professionals, or at least teachers are not trusted as
professionals as doctors and lawyers by the public, and that (2) teachers do not have theorized
and abstract knowledge and the power it holds. That is, it is clear that certain degrees of
autonomy and discretionary judgment itself cannot let an occupation be a profession. Based on
this logic, for example, the police, although it has extreme discretionary judgment, are not
professionals because it does not have theorized and abstract knowledge. Also the power they
have is not acquired by themselves, but granted by higher-level of authority beyond their control.
As discussed later, the attempt initiated in a major movement aimed to professionalize teaching in
1980s was to construct the theorized and abstract knowledge at colleges of education.

**Professionalization in a globalized era**

The previous section provided the historical contexts on how profession has been
conceptualized and established. While the literature shows various perspectives on the process of
professionalization, the previous section highlighted all the literature on the sociology of
professions includes two critical characteristics to define profession as it is. These two
characteristics are also the key for the following section specifically on professionalization of
teaching. However, it should be noted that one of the critiques to the sociological studies of
professions is that the conceptualization was based heavily on ethnocentrism especially biased

In response to the paucity of the studies focusing on diverse cultural contexts of
professions in different nation-states, Faulconbridge and Muzio (2012) highlight the significance
of developing theories on transnational or transcultural conceptualization of profession.
Faulconbridge and Muzio (2012) argue that in fact empirical studies on the process of
professionalization have been well documented across the globe, however, there is little attempt
to theorize sociology of profession in this globalized era. Indeed, there are nationally distinct
establishment and development for professions and the process of professionalization (see Weiss-Gal & Welbourne’s (2008) cross-national analysis on professionalization of social work in Chile, Germany, Hungary, India, Mexico, South Africa, Spain, Sweden, the U.K. and the U.S.). However, interestingly, phenomena of convergence in the systems of professions have been also observed across different countries (Faulconbridge & Muzio, 2012; Lane, Potton, & Littek, 2002).

For example, a cross-national study on the professions of solicitors/advocates and pharmacists between Britain and Germany, Lane, Potton, and Littek (2002) provide an excellent example of how the divergence and convergence simultaneously happened through the development of the system of profession in the globalized era. Lane, Potton, and Littek (2002) found that the two professions in two different countries quite differently responded to the change of government policy, markets, clients, and technology based on each country’s political, economic, and systematic contexts. However, the key is that along with such divergence within each profession and each country, there are also convergent developments triggered mainly by similar national pressures and international competitions. In order to understand this relatively new phenomenon in the globalized era, there is in need of examining cross-national similarities and differences of professionalization on how and how much the knowledgebase, autonomy, status, reputation, and role of professions are shaped by national and/or transnational contexts.

Indeed, there are some variations in terms of a profession’s status in a given country. For example, teaching is a highly attractive life-long career in many nations such as Finland and Singapore (Hargreaves & Fullan, 2012; Darling-Hammond & Lieberman, 2012; Darling-Hammond & Rothman, 2011; Sahlberg, 2011), whereas the current education policy climate in the U.S. clearly portrays teachers as the very target of criticism of the U.S. “mediocre” performance compared to the peers in other developed nations. Given the act of teaching can be different based on national and cultural perspectives, cross-national analyses of teachers and their
practices and working environment will enable us to find what components are required to establish, nourish, and sustain professionalization of teaching. The following section provides the historical contexts of teaching in the U.S. to consider why professionalization of teaching in the U.S. did not pass the tipping point. In doing so, it seeks how the current policy climate de-professionalizes teaching and why we urgently need to understand and delineate a unique contour of teaching as a profession.

**Professionalization of teaching**

Compared to other professions such as doctors and lawyers, the overall status of teaching as profession has not necessarily been well established (Hargreaves & Fullan, 2012; Labaree, 1997, 2004). This may be because the knowledge that teachers provide as professionals is the one that all of us had learned when we were in school. As Freidson (1986) explains, the formal knowledge that a given profession holds should be “arcane to everyday people, and some of it can be thought to be powerful and dangerous” (p. 4). This may be because students—“clients” of teachers—have already been heavily shaped by the way in which their parents see and implement education for them. This may be because it is hard to see schools—the workplace for teachers—as a place to “build the intellectual capital of the occupation” (Lortie, 1975/2002, p.56). Our intimate but too-much familiarity with education would hinder it to become a well-professionalized field.

As shown above, however, some countries see teaching is a highly attractive life-long career. Through comparative analyses on teacher education around the world, Darling-Hammond and Lieberman (2012) found that “[w]here teaching is viewed as a profession, there is also clarity about a strong mission for a knowledge-based system of education that strives to offer equitable opportunity” (p.152). In Finland, for example, not only having a great reputation from the public,
teaching is a sophisticated profession “with all teachers holding a Master’s degree that encompasses both strong subject matter and pedagogical preparation, and that integrates research and practice” (Darling-Hammond & Lieberman, 2012, p.152). Based on the strong foundation of teaching as a profession, Finland and Singapore have made significant investment to teacher education and professional development; there are abundant amount of on-going support for teachers to nourish, sustain, and innovate their knowledge and skills, and to develop their life-long career. Under such education systems, teachers feel secured and confident for their status and can fully get engaged in additional degrees for their professional development as teachers.

Indeed, these cases as in Finland and Singapore have partially contributed to the U.S. current policy reform ideas related to teachers—such as requiring Master’s degree for all new teachers’ entry and striving for bringing in the best and brightest to the teaching workforce. However, without well-established professionalization of teaching, these policy reform ideas could only add tiny hope onto the future with a very negative hidden message: all the current teachers are not good, and the teaching workforce would become better after they get retired.

While teaching as a profession has been well established in some countries, the major movement to professionalize teaching in fact occurred in the U.S. in 1980s (Darling-Hammond, 2012; Labaree, 1997). Why didn’t professionalization of teaching pass the tipping point in the U.S.?

In The Sociology of Teaching published in 1932, Willard Waller reported that the low status of teaching profession was already a concern at that time. According to Waller (1932/1965), teaching as an occupation was “the refuge of unsaleable men and unmarriageable women,” “a failure belt,” and “the occupation of second choosers” (p.61). The role of teachers is to be strict and order classrooms, and they were valued only in such a way. Waller’s comments are rather ironic by critiquing that the way in which teachers with ordered classroom are valued even if their instructions are useless for students to learn. Although the classroom order is the key of teachers’ job, it seems they were neither respected in people’s daily lives, nor immersed well in
the community. For example, the story that Waller (1932/1965) describes—when a principal visited a barber shop, people pretended to be very nice to him but ridiculed him behind his back—shows school principal and teachers were a form of dehumanized authority for them, and the authority was taken clearly as negative. As Waller describes, although people called them “professors,” they did not respect them as members of their community. Yet at the same time, Waller (1932/1965) observed that being a teacher per se created a constraint for principals and teachers to join the community as human beings, and that they did not make their efforts to get in the community, either. It is this dehumanized connection that Waller (1932/1965) sees as a huge concern because education is an intimate inquiry. Waller (1932/1965) analyzes that “the narrow social intellectual training of teachers had destroyed some of their essential qualities as human beings” (p.64). Although doctors, too, have the narrow intellectual training, the portrayal of teachers whipping vulnerable children at that time, compared to that of doctors curing their disease that nobody else can, clearly hinder their connection to the principal and teachers. It is these dehumanized connections that would deteriorate impersonification and isolation of teachers from the community.

The “authority” of teachers that Waller (1932/1965) portrays is rather different from the technical autonomy and discretionary judgment that a given profession requires. Indeed, teachers have limited authority within their field (Parsons, 1939); the way in which teachers have authority in the U.S. around that time constantly attached with the image that teachers use their power to individually discipline students and order classroom. Lortie (1975/2002) argues that there existed no collective technical culture for teachers, and the lack of collective knowledge also hinders them to assert their authority. Also with the fact that administrative supervised positions have been predominantly male and teachers predominantly female, it has been recognized for a long time that the authority of teachers would only exert to children in classroom, and that teachers have been the subordinate position at the bottom of the hierarchy supervised by principals and
administrators (Acker, 1983; Apple, 1985; Labaree, 1997; Waller, 1932/1965). Since the subordinate position that teachers have been situated in, professionals in education indicate not teachers themselves but administrative supervised positions. The rise of professionalism in the school system, therefore, rather focused first on the professionalization of school superintendency and administrative leadership than that of teachers. However, due to the concentration of bureaucratic power and autonomy rather than developing expertise knowledge, it was not so successfully established as was the case for physicians and doctors (Larson, 1977).

There was indeed a major movement for teaching professionalization in 1980s. In the book, *How to Succeed in School without Really Learning: The Credentials Race in American Education*, David F. Labaree (1997) decomposed the intertwined historical and political contexts on the movement to professionalize teaching. The key to this movement was two major reports both published in 1986: One was *A Nation Prepared: Teachers for the 21st Century* by the Carnegie Task Force on Teaching as a Profession, and the other was *Tomorrow’s Teachers* by the Holmes Group led by leading higher education institutions (Darling-Hammond, 2012; Labaree, 1997). Based on the successful establishment of professionalization of physicians and doctors through medical education, both reports suggest that the strong teaching workforce is the only way to improve the U.S. public education, and that it is made through professionalization of teaching by raising the bar to the entry to the teaching workforce and improving teachers’ status and working conditions. By establishing the professional control for the pedagogical skills and subject knowledge, as Labaree (1997) mentions, both reports argue that “lead teachers” (Carnegie) and “career professionals” (Holmes) would bring about the excellence in the U.S. public education. This was exactly the time the U.S. schooling had been harshly criticized as “failing” in response to *A Nation at Risk* issued in 1983 by National Commission on Excellence in Education. The purpose of the U.S. education had been swinging between political goals (e.g. social equity) and market goals (e.g. global competency); along with the shift from equity to
excellence, this proposal from these powerful institutions—strengthening professionalization of teaching—was one of the most legitimized answers to pursue these goals at once. Interestingly, this direction of educational reforms also fit the rise of feminism around this time. However, it should be noted that the rise of feminism in fact strived after the entrance to the fields that females had hardly been before (e.g. science and engineering) rather than the rise of their status under the current occupation, to say nothing of teachers, which was seen as “the unpaid and uncredentialed status of mother” at that time (Labaree, 1997, p.138).

As Larson (1977) argues, when the rise of professionalization emerges in general, it requires a strong driving force especially from inside. However, this movement to professionalize teaching was rather a political strategy to pursue the larger goals for the U.S. education. Rather than teachers’ own motivation to raise their own status from bottom-up, the movement came from outside. Indeed, in response to the rise of feminism, a lot of female teachers left their jobs to seek upper social mobility in other occupations (Labaree, 1997). Since this movement was proposed from top-down—by elite public officials and scholars in higher education institutions—, the approach to professionalization of teaching focused on theorizing the body of knowledge for teaching and learning, setting aside of the establishment of teachers’ technical autonomy and discretionary judgment.

It is extremely hard to theorize the body of knowledge for teaching and learning, however. First of all, unlike medical knowledge for doctors or legal knowledge for lawyers, the knowledge of teaching was relatively close to what all have learned through their own educational and everyday experiences: What teachers provide is what we have already learned to some extent at any given point of our schooling. Thus, teacher educators in higher education institutions focused heavily on the scientificity of teaching, which was authoritatively and rigorously framed by university-based research (Labaree, 1997). In order to scientifically argue the art of teaching, however, reasonable hypotheses would start with debunking the current
common practices of teaching. That is, the research to construct the body of knowledge to professionalize teaching required to seek either problems or missing part of the current practice of teaching. Furthermore, rather than context-bound research, which is usually focused on a small scale group, the large-scale research was well justified for a wide-range of policy interventions to reform and improve the current teaching workforce, which ironically led to negation and devaluation of what teachers had been done in the past.

As in the time when the movement to professionalize teaching in 1980s did not pass the tipping point, the recent reforms on teachers have degraded what the U.S. teachers—especially teachers with abundant experience, knowledge and skills—have been done throughout their teaching careers. The reforms that encourage to hire the best and brightest and to raise the bar for the entry of teaching indicate that the nation needs to have “better” workforce than the current one. By situating newcomers of the teaching workforce better than all the current teachers, these reforms clearly keep sending an implicit message to the public that the current teaching workforce is bad. In doing so, the current education policy climate to strengthen the U.S. teaching workforce fosters de-professionalization of teaching even before the establishment of its professionalization.

**Introducing professional capital**

In *Professional Capital: Transforming Teaching in Every School*, Andy Hargreaves and Michael Fullan (2012) propose a concept of professional capital that indicates professionalization of teaching should be critical and fostered through the process of capacity building over time. The term, professional capital, has been seen in the literature from health care, sociology, and social work. Derived from the Bourdieuan framework as a form of symbolic capital, however, it is not necessarily a fully theorized concept as itself (e.g. Kurunmäki, 1999; Noordegraaf & Schinkel,
In the field of nursing, Gobbi (2010) connects learning, working, and professional communities through the concept of professional capital based on the theory of communities of practice (cf. Lave & Wenger, 1991; Wenger, 1998). Meanwhile, Hargreaves and Fullan (2012) have developed the concept of professional capital geared specifically towards a school-level workforce of teaching. In order to nurture and sustain a highly qualified workforce in every school in the long run, it requires a school-level core infrastructure where principal, teachers, and school staff can share, discuss, and learn together to build a sustainable professional community (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Hargreaves & Fullan, 2012). Even if it takes time, it is critical to build and support such a school-level infrastructure—where new teachers learn from experienced teachers, where teachers support each other to appreciate one’s strengths and limitations, and where there are opportunities for teachers to learn recent studies in the field of education—, so that principal, teachers, and school staff can collectively raise their professionalism throughout their inquiries and practices. In the long run, this is a rather efficient investment than enticing the best and brightest youth into teaching which currently is hardly recognized as respectful and professional (Hargreaves & Fullan, 2012).

Indeed, one inspiring teacher can make significantly positive impact on many students by guiding them and showing a whole new world to them. Whereas what one teacher can make is the very essence of teaching and learning, Hargreaves and Fullan (2012) assert that such an individual-level human capital neither generates the overall stable teaching workforce at a given school, nor leads to any systemic change for the rise of professionalization of teaching. A talented individual has nonetheless a limited capacity to sustain the entire teaching workforce and teaching as a profession. In this sense, alternative certificate programs through rather short-time training with short-term commitment, one of which is a strategy of Teach for America and Teach First, not only devaluate the formal knowledge for teaching as a profession, but also even “give false hope [to the trainees] that they can transform the profession as a whole” (Hargreaves &
Furthermore, the current policy strategies geared towards rewarding good teachers and punishing bad teachers may make things worse by bringing individual competitiveness into school instead of nurturing a professional collaborative community at a school.

The uniqueness of this concept is that a unit that holds professional capital is not an individual teacher but a school. Indeed, the idea of school-level accumulated capacity as the core essence for effective teaching is not at all brand new in some other countries where collective responsibility and efficacy has been already well installed in the education system. Based on the previous sections, however, it is obvious in the U.S. that it can be quite transformative to situate teaching as such a unique profession based on the concept of professional capital in response to the current teacher reform ideas. This is because, as Bryk and Schneider (2003) point out, it requires that “[r]egardless of how much formal power any given role has in a school community, all participants remain dependent on others to achieve desired outcomes and feel empowered by their efforts” (p.41). By shifting social construction of teaching in the U.S. from individual excellence to collaborative school culture, the concept of professional capital may have a potential for the current teaching workforce to empower themselves to raise the professionalization of teaching.

According to Hargreaves and Fullan (2012), professional capital consists of three components: human capital, social capital, and decisional capital. Among these three, Hargreaves and Fullan (2012) especially emphasize the importance of social capital that a given school can hold: The power of collaborations accompanied by the collective responsibility to make school an engaging venue of teaching and learning. The following section explains the conceptualization of each capital component in details. Although Hargreaves and Fullan (2012) situate all the three capital components geared specifically towards teaching as a profession, the first two components—human capital and social capital—are the concepts broadly used for research in the
field of education. Therefore, the first two subsections start with a brief introduction of how those theories were theorized and developed, followed by the conceptualization of these capitals for professional capital by Hargreaves and Fullan (2012). The third one, decisional capital, is the one that Hargreaves and Fullan (2012) propose as a critical component for teaching as a profession referring to the concept of decisional law. The key is that whereas capital is originally conceptualized as an individual asset, all the three capitals as the components of professional capital are seen as an asset that a given school as a whole holds. Figure 2-1 below summarizes the main points of these three professional capital components.


Figure 2-1. Summary of the Three Professional Capital Components
Three components of professional capital

Human capital

Much literature has focused on the human capital model initially proposed by Theodore Schultz and Gary Becker from the early 1960s (e.g. Blaug, 1976). Human capital refers to knowledge, skills, and learned abilities that an individual acquire through education, training, and experiences. Human capital theory suggests that rather than seeing individuals as manual labor workforce who require minimum on-the-job knowledge and skills, they invest their education, training, and experiences to gain knowledge and skills as a form of capital. Human capital is an individual asset to be potentially used to make the individual productive and competitive on the market (Becker, 1962; Schultz, 1961). Thus, human capital theory gives individuals’ knowledge and skills a much broader sense that they can be strategically gained, stored, developed, and utilized on a long-term basis.

Hargreaves and Fullan (2012) situate human capital as the essential component of professional capital in teaching. Following the idea of human capital as individual assets, Hargreaves and Fullan (2012) argue that human capital is about individual talent as “having and developing the requisite knowledge and skills” (p.89). However, it is taken much broader than the original; it conceptually includes all factors holistically related to the essential of teaching. For example, Hargreaves and Fullan (2012) suggest that passion for teaching, instructional practices, technical strategies to guide children to get actively engaged in learning, teachers’ understanding of cultural, historical, and economic contexts, emotional capabilities, moral commitment, creativity and openness to new technologies and innovation can be seen as human capital that constructs professional capital for effective schooling. Furthermore, unlike the original human capital theory, this human capital can become operative only from the usage collectively through
teamwork. When human capital is seen as a potential for the rise of professionalization of teaching, its value solely for an individual teacher is gone. Human capital in this sense is effectively used only when a given school has social capital, the second component, to make individual talents as an aggregate capacity for the school.

**Collective sense of efficacy as human capital**

Since Bandura (1977) introduced a theoretical framework of self-efficacy into social cognitive theory, the concept has been utilized in the field of education in order to understand the relationship between teacher self-efficacy and their professional work (cf. Dembo & Gibson, 1985; Goddard, Hoy, & Hoy, 2004; Tschannen-Moran & Hoy, 2001). According to Bandura (1977), an efficacy expectation refers to “the conviction that one can successfully execute the behavior required to produce the outcomes” (p.193). Hargreaves and Fullan (2012) put much value on teachers’ commitment and self-efficacy as a component of professional capital. Such teachers’ efficacy beliefs, in which teachers believe they can make a difference for better student learning, play a role as significant as their capacity of what teachers can actually do. Indeed, much research has been done on teachers’ sense of efficacy, and it shows positive links between teachers’ sense of efficacy and various outcomes (cf. Goddard, Hoy, & Hoy, 2004; Tschannen-Moran & Hoy, 2001), such as classroom and student management (e.g. Woolfolk, Rosoff, & Hoy, 1990), instructional practices (e.g. Allinder, 1994), and students’ sense of self-efficacy (e.g. Anderson, Greene, & Loewen, 1988). Bandura (1993) also focuses on teachers’ beliefs in their personal self-efficacy and found not only its effect on the types of student learning environments and academic progress, but also significant effect of the collective level of efficacy on school-level student achievement. Based on the concept of professional capital, this collective level of
teachers’ sense of efficacy is considered as one of the most critical components for a given school to change for the better.

**Social capital**

The conceptualization of social capital was developed mainly by Pierre Bourdieu (1986) and James Coleman (1988). Social capital refers to the valued resources that a given durable social network or relationship holds so that the members of the network can access and utilize it in order to take actions for their desirable consequences. That is, as Bourdieu (1986) argues, social capital is “the collectively-owned capital,” that can strategically “exert a multiplier effect” than a form of capital that only an individual possesses (p.249). Coleman (1988) argues that the concept of social capital is valuable in terms of allowing both economical and sociological principles to meet: An actor takes action with an intention to maximize one’s benefits, yet at the same time, the action shapes and is shaped by rules, norms, and values from multiple layers of social structure that the individual belongs to.

In general, resources and relationships are analytically distinct. However, relationships within a given network can been seen as a form of capital that the network holds. A smooth circulation of information, for example, can energize the network and thus amplify outcomes. With this collective resources and information, the group as a whole can achieve more than an individual can do by oneself. In this sense, it is critical not only to share and circulate individual resources and information within the group, but also to maintain the group identity to somehow restrict the benefits only within the members. Coleman (1988) uses the term “closure” to emphasize the importance of bounded solidarity and trustworthiness of the social structure.

Needless to say, however, there exist various actors within a network. Some actors have more power and access to the network resources whereas those who have less power and access.
Therefore, there are conflict views—individual vs. collective—to define social capital (e.g., Baker-Doyle, 2011). That is, social capital can be seen either as an individual capacity to access to the resources that the network holds or as the entire network resources that an individual potentially utilize by belonging to the network. Hargreaves and Fullan (2012) take the collective view of social capital. As Coleman (1988) also highlights, social capital as collective resources and information generates prosperity of a given group as a whole and thus fosters human capital—e.g. stronger workforce for the future—for their next generations. As long as the network invigorates and sustains, their resources will be held, even proliferated, and also shared and taken over to the members of the network.

Social capital in the concept of professional capital for effective teaching and schooling thus refers to “how the quantity and quality of interactions and social relationship among people affects their access to knowledge and information” (Hargreaves & Fullan, 2012, p.90). Furthermore, Hargreaves and Fullan (2012) emphasize that social capital plays a critical role to develop professional capital because using social capital, a given group can generate some sparks among different human capitals, which is impossible to make it happen by only an individual. Recognizing each teacher as a professional, a collaborative network to develop their knowledge and skills in the long run should lead to cultivate professionalization of teaching as a whole.

Groups, teamwork, and collaboration is a powerful communication for teachers, school staffs and school leaders. School-level professional capital through its network should be circulated, shared, developed, and sustained. A few excellent teachers in a school would not raise the overall quality of the school’s teaching workforce under the circumstance that individual excellence on teaching attributes to individual accomplishment. In a strong professional community, principal, teachers, and school staff can share ideas, discuss instructions, learn from each other, and develop and refine their teaching strategies. That is, professional capital is not that
individual teacher can have or invest, but it is rather a school-wide, school-district-wide, and even possibly nation-wide capital that principal, teachers, and school staff need to develop altogether.

**School-level professional learning community (PLC)**

Professional learning community (PLC) is not a whole new concept. For example, Kruse, Louis and Bryk (1994) argue that a school-based professional community is critical for the school’s fundamental change and improvement. In order to develop a strong professional community, Kruse, Louis and Bryk (1994) point out that the key is “openness to improvement, trust and respect, teachers having knowledge and skills, supportive leadership, and socialization” (p.71). Attaching a sense of “continuous inquiry and improvement” to the conventional meaning of professional community, Hord (1997) introduced PLC as a new strategy to cultivate a long-term community of teaching, caring, and learning.

Whereas PLC can be recognized as teachers’ network for teaching where they can share ideas and work towards common values as a team, such a collaborative community can be also extended to the organizational contexts of schooling. Seeing school as an organic system of management, Gamoran, Secada, and Marret (2007) claim that it is important for school as an organization to nurture “social relationship of trust, shared responsibility, collective decision making, and common values as mechanisms” as a whole (p.145). However, such a community does not automatically emerge just by principal, teachers, and school staff getting together at one location. There should exist specific goals, missions, rationality, and meaningfulness to collaborate altogether, along with useful resources and information for each individual’s everyday work. Most importantly, each of principal, teachers, and school staff needs to know and understand these as benefits acquired from PLC. Based on their case study, for example, Gamoran, Gunter, and Williams (2005) found that effective professional development helps set
up a formal structure for teachers to actually learn benefits of having colleague ties. That is, how to incorporate the conceptualization of PLC to teachers’ ongoing learning is also a key.

As mentioned above, Hargreaves and Fullan (2012) see PLC as social capital that principal, teachers, and school staff altogether create, nurture, and sustain. A school-level strong PLC have many advantages. A school-level involvement for student learning enables to approach one student in various ways. As a team, different subject teachers, academic counselor, and school staff can share various aspects of a student that one teacher cannot necessarily see. It is no doubt that one teacher can be influential to a student in depth, yet at the same time, collective knowledge, information, ideas, and responsibility altogether can weave the complexity of the art of teaching. In this sense, each member can be a great asset to the team. New teachers, although they may have no experiences of teaching, have a great advantage that their age and experience of schooling as students are much closer to their students than are experienced teachers. Mid-career teachers may be able to well bridge between new teachers and experienced teachers, and experienced teachers can share their experiences with openness to learn new ideas from less experienced teachers. School staff can support teachers from their specialized knowledge and skills. Utilizing Social Network Analysis (SNA), for example, Baker-Doyle (2011) found that the infrastructure of the professional network that the new teachers can rely on is substantial to avoid teacher attrition and to gain a sustainable teaching workforce at a school. In order to create a strong PLC, Hattie (2009) suggests that “[s]chool leaders and teachers need to create school, staffroom, and classroom environments where error is welcomed as a learning opportunity, where discarding incorrect knowledge and understanding is welcomed, and where participants can feel safe to learn, re-learn, and explore knowledge and understanding” (p.239). A well-constructed collaborative school culture across generations should be a great asset not only for new teachers, but also all the principal, teachers, and school staff at the school.
Furthermore, there is evidence of positive effects of PLC on student achievement from both regional and national representative school samples (McLaughlin & Talbert, 2006). According to McLaughlin and Talbert (2006), research found that strong correlations between PLC and teaching practices that predict student learning gains, and also between PLC and student experiences of their school and classes. Although focusing more on the whole organizational system of schooling including ties among school professionals, parents, and the local community for improvement, Bryk, Sebring, Allensworth, Luppescu, and Easton (2010) also found that professional development geared towards building and supporting PLC was associated with school-level academic productivity gains. By the same token, the process through the development and sustainability of curriculum alignment—which requires teachers and school staff to collaborate across grades—invigorates collective working productivity and motivates individual teachers for future collaborations, which leads to “enhancing the social resources of the community for its next round of improvement efforts” (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010, p.117). Such a school-based professional community, once it has been established, can trigger a cascade of improvements and further developments to raise the professional capital at a given school.

Indeed, the concept of PLC tends to be focused heavily on teachers. However, McLaughlin and Talbert (2006) point out the importance of how principals situate their leadership to PLC of their school. McLaughlin and Talbert (2006) warn that “[p]rincipals unable to share control with teacher’s communities, who seeds a climate of suspicion and distrust, or who simply do not value then, quickly squelch teacher learning communities and drive teachers back behind their classroom doors” (p.81). Even if principals feel they take a great leadership, teachers may appreciate far less than the principals assumes they would. For example, Wahlstrom and Louis (2008) found that rather than actual principal leadership, teachers’ perception of principal leadership has a consistent effect on how much teachers get engaged in teaching. The
main actors of PLC are nonetheless teachers; for a school-level systemic change, as Bryk, Sebring, Allensworth, Luppescu, and Easton (2010) argue, principals need to play a role as “catalytic agents” (p.45). That is, it is important to seek the balance between the role of principal and teachers in order to invigorate PLC and maximize its effect on accountability of the school as a whole. In this sense, ad hoc professional development for teacher collaboration might not work well at all. In a similar vein, neither top-down compulsion nor administrative controlled collaboration would not well establish a strong PLC. As shown above, the modern profession’s struggle caused by the conflict between managerial and professional fields can easily hinder the establishment of PLC (Evetts, 2011; Fournier 1999; Noordegraaf & Schinkel, 2011). On the contrary, however, leaving all the unlimited choice to teachers to enhance collaboration would not work, either (Hargreaves & Fullan, 2012). With a well-established PLC, even a competition within the team, as long as it is healthy, could spur the power of collaboration. Attached with treating all the team members as professionals, cultivating collective responsibility and believing the power of the team can pave a way to raise professionalization of teaching.

Decisional capital

The third component to construct professional capital in teaching is decisional capital. Decisional capital refers to “the capital that professionals acquire and accumulate through structured and unstructured experience, practice, and reflection—capital that enable them to make wise judgment in circumstances where there is no fixed rule or piece of incontrovertible evidence to guide them” (Hargreaves & Fullan, 2012, pp.93-94). As mentioned above, technical autonomy and discretionary judgment is one of the most critical factors to conceptualize and establish a profession. This capital reminds us of what lawyers and doctors do and the very reason why they are recognized as professionals. Although their power of discretionary judgment for lawyers and
doctors is geared more towards their autonomy as individuals, they as professionals share the knowledge, skills, and expertise to make expert diagnoses, decisions, and judgements when facing a new case through their clients in case of lawyers and patients in case of doctors.

Hargreaves and Fullan (2012), as for the other two components, see this capital as a collective autonomy given to a PLC as a whole and highlight that it should not necessarily be led by scientific evidence-based, but more so by experienced collective judgements. This indicates such decision-making processes cannot be generalized as standardized practices. The judgment should be made case by case with specific contexts and situations considered, and the decision-making processes and results should be shared with all the colleagues in the community. In doing so, reflections, inquiries, and quests to make expert diagnoses, decisions, and judgements will be piled up as a form of human capital within the PLC. In order to activate and maximize the effect of decisional capital, however, the balance between leadership and teacher involvement in school-level decision-making is the key as shown in cultivating social capital at the school level.

As discussed in the section of the sociology of professions, a teacher alone in one’s classroom does not necessarily trigger the image of them having technical autonomy and discretionary judgment that every profession should hold. Alas, it rather connotes some distrustfulness towards teachers in general that they could do anything without being watched over in their owned classroom. Moreover, as shown in the previous section on social capital, leaving all the unlimited choice to teachers is not at all constructive for effective teaching. That is, no instructional guidance what teachers are doing does not necessarily mean that they have technical autonomy and discretionary judgment as professionals. Although it is hard to imagine, Bryk, Sebring, Allensworth, Luppescu, and Easton (2010) in fact found during their field work that some schools did not have any instructional guidance at all.

In sum, autonomy to cultivate professional capital is more like emerging teacher initiatives through school-level collaborations and communications. As showed above, it is not
necessarily good if individual teachers have a huge autonomy that she or he can do anything in their class. Rather, by seeking collective teacher initiatives for technical autonomy and discretionary judgment is critical to cultivate and sustain decisional capital. In this sense, this component should be in fact a form of capital which a given school invests for future nourishment of its teaching and learning. Figure 2-2 below provides a summary for these three professional capital components and what they bring about to a given school.

![Figure 2-2. Professional Capital as a Theoretical Framework](image)

As Hargreaves and Fullan (2012) proposed, it takes time to build, develop, and sustain professional capital at a given school. Rather than setting a direct, short-term goal to gain pervasive student outcomes—e.g. increasing student engagement, critical thinking skills, teamwork, and academic accountability as well as reducing their tardiness and drop out, to name a few—, the concept of professional capital first seeks how to construct a good school for teachers as professionals as well as a good school for students to learn. When it especially comes to cross-national contexts, it should be noted that the meaning of good could be different based on
social construction of teaching, learning, and schooling across different countries. In this sense, the outcome variable of this study, whether or not individual teachers would recommend their school is a good place to work, is an interesting indicator to probe how such perception is related to these three school-level professional capital components and how those relationships can vary in the U.S, Finland, Japan, and Singapore. As emphasized above, the concept of professional capital is one specific strategy to empower the current teaching workforce. Although similar components can be seen in a concept of school climate for example, school climate is conceptualized more directly for the sake of students. Rather than building school climate for effective student learning, the conceptualization of professional capital strategizes teacher-initiative empowerment for teachers leading to the rise of their professionalism followed by pervasive student outcomes over time.

**Teaching as a profession in Finland, Japan, and Singapore**

In introduction, Figure 1-1 showed that there is a variance across 29 countries in how strongly lower secondary teachers agree or disagree with the statement, “I think that the teaching profession is valued in society” from TALIS 2013. In the review of sociological analysis of professionalization, Macdonald’s (1995) cross-national comparisons of professions of law and medicine in England, Germany, France, and the U.S. showed that how a profession had established its status was quite different based on national and cultural contexts of these countries. Indeed in this globalized era, the development of communication and technology enables us to easily see what other nations do and thus accelerates some forms of policy borrowing—a given nation proposes and implements a policy which worked well in another nation-state in response to a similar problem that the nation has—around the world. Historically, however, curriculum, pedagogy, beliefs, and teaching practices have been nurtured by cultural...
norms and values, and thus, the act of teaching should have reflected greatly upon national specific contexts (Bruner, 1996; Fraser & Ikoma, 2015; LeTendre, Baker, Akiba, Goesling, & Wiseman, 2001; Shimahara & Sakai, 1995).

Table 2-1 shows cross-national comparisons of national and cultural indicators among Finland, Japan, Singapore, and the U.S. As briefly mentioned in introduction, Finland, Japan, and Singapore were selected as counterpart countries based on the criteria of having: (1) high performance in PISA 2012 math and reading (OECD, 2014a); and (2) either similarity or difference in the two cultural indices compared to the U.S. These two cultural indicators are Power Distance Index (PDI) and Individualism Index (IDV) known as Hofstede Dimensions of National Cultures (cf. Hofstede & Hofstede, 2005). The PDI refers to how much a given country has tolerance for authoritarianism, and the IDV refers to how individualistic a given country’s culture is (Hofstede & Hofstede, 2005). The value of PDI and IDV ranges from 1 to 120. Higher PDI indicates higher tolerance for authoritarian regimes, and higher IDV indicates more individualistic the culture is.

Table 2-1. Cross-National Comparisons of National and Cultural Indicators

<table>
<thead>
<tr>
<th>Selection Criteria</th>
<th>Finland</th>
<th>Japan</th>
<th>Singapore</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(1) PISA 2012 scores</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math (rank)</td>
<td>519 (12)</td>
<td>536 (7)</td>
<td>573 (2)</td>
<td>481 (36)</td>
</tr>
<tr>
<td>Reading (rank)</td>
<td>524 (6)</td>
<td>538 (4)</td>
<td>542 (3)</td>
<td>498 (24)</td>
</tr>
<tr>
<td><strong>(2) Hofstede dimensions of national cultures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Distance Index (PDI)</td>
<td>33</td>
<td>54</td>
<td>74</td>
<td>40</td>
</tr>
<tr>
<td>Individualism Index (IDV)</td>
<td>63</td>
<td>46</td>
<td>20</td>
<td>91</td>
</tr>
</tbody>
</table>

As Table 2-1 shows, Finland, Japan, and Singapore ranked high for both math and reading in PISA 2012. Among high achieving countries in PISA 2012, Finland has relatively close values of PDI and IDV to those of the U.S. Japan is quite different from the U.S. because
both PDI and IDV are relatively neutral. In this sense, Japan is different from any other three
countries. Finally, Singapore has quite opposite features for both PDI and IDV compared to those
of the U.S.

In these three countries, the education system is centralized at the national level whereas
the U.S. has a rather decentralized education system. It should be noted that, however, a
nationally centralized system does not necessarily associate with tightening control onto teachers.
Comparatively, teachers in these three countries are seen as professionals and have a certain
degree of autonomy regarding how to teach and how to nurture students’ progress based on the
nationally standardized curriculum. Meanwhile, although the U.S. has a decentralized education
system, it does not necessarily indicate that there is a significant degree of autonomy for teachers.
Rather, under the administration by states, school districts, and administrative personnel, teachers
in the U.S. tend to have much less autonomy for how to teach and how much they can
involved in the school-level decision making processes than teachers in these three countries do.
The following section introduces a brief overview of teaching as a profession in Finland, Japan,
and Singapore.

Brief overview of teaching as a profession in Finland, Japan, and Singapore

Finland

It is certain that one of the most critical factors made possible for Finland to have become
a high-performing country from a poor agrarian nation in the post-World War II era is the
contribution of teachers (Sahlberg, 2011). The public as a whole gives profound trust, respect,
and praise to teaching as a high-level profession in Finland. The Finnish schools have tough
national curriculum, and the entry of teaching workforce is highly competitive. For example, it is
required to have a two-year Master’s degree in education at a well-known university where prospective teachers receive research-based training after a thorough training to teach a major and two minor subjects when they are undergraduate students (Darling-Hammond & Rothman, 2011; Sahlberg, 2011).

Salaries for teachers are not necessarily high, and its scheme is not competitive. Since teachers are highly trained professionals, they are given significant autonomy inside the classrooms (Darling-Hammond & Rothman, 2011). Despite the high degree of autonomy at classroom, the concept of professional learning communities (PLC) has also been well incorporated in Finnish schools. A culture of trust conceptualizes working together among all as a community, and individual ability for collaboration is one of the major test items on the actual entrance exams for prospective teachers to get into the mandatory Master’s programs (Sahlberg, 2011).

Japan

Teachers in Japan are public servants, and therefore, the status has been relatively stable for a long time. Historically, teacher education schools were more open to bright students from economically disadvantaged homes. Therefore, teachers had been respected especially in rural areas as great moral figures and role models. In this way, individual teachers tend to affect students more humanly and intimately than professionally.

When looking at teachers as a group, individual difference in teaching is seen as an obstacle and try to standardize teaching so that anyone can perform equally excellent in the U.S., whereas in Japan, individual difference is a natural characteristic of a group (Stigler & Hiebert, 1999). Based on their comparative study of beginning teachers between the U.S. and Japan, Shimahara and Sakai (1995) also argue that “broad support for holistic teaching stemmed from
ethnopedagogy, which [Japanese beginning teachers] identified as a foundation of teaching and the culture of teaching at their respective schools” (p.211). Through working as a group, teachers in Japan therefore try to maximize the overall outcome to bring different kinds of individual excellence into the group. *Shokuin shitsu*, a large staff room installed in almost all Japanese schools, plays a critical role as a locus of communication and collaboration (Ahn, 2014; Shimahara & Sakai, 1995). *Shokuin shitsu*, in which all teachers are assigned to individual desks for routine work, is “a place to be nurtured, whereas a classroom is a place to interact with students” (Ahn, 2014). Based on these features, the social construction of teaching in Japan is significantly different from that of the U.S. (Shimahara & Sakai, 1995; Stigler & Hiebert, 1999). That is, while in Japan teachers admit different teachers have different traits and altogether maximize the overall teaching workforce through collaborative activities, in the U.S. each teacher is required to be excellent to be evaluated well.

However, it should be noted that there is a concern in Japan that school teachers become no longer well respected (e.g. Gordon, 2005). One of the reasons is that daily school teachers may be recognized as less professional than teachers of *juku* schools where an informal private after-school tutoring occur mainly for students to pass entrance exams for private schools and higher education institutions. For example, Russell (2002) warns that “[i]n case of Japan, private tutoring helps to erode the authority of the public school system because private tutoring need not align itself with official education standards” (p.159). Since *juku* teachers provide test-taking strategies as the shortest cut to get to the point, their students may look down on daily schools and identify test-taking strategies as all they should learn. Without any teaching certificate, it is possible for *juku* teachers to gain high autonomy and authority in corporatized *juku* classroom settings. In this sense, Japanese schools are also at the crossroads to rethink what define professionals of teaching in response to a comparison between daily school teachers and *juku* school teachers.
In Singapore, the Ministry of Education (MOE) is strategically involved in the process of recruiting and hiring prospective teachers (Lim-Teo, 2002). Teaching is a highly attractive job and a strong profession in Singapore (Darling-Hammond & Rothman, 2011). Almost all pre-service teachers receive preparation at the National Institute of Education (NIE), which is affiliated with Nanyang Technological University (Lim-Teo, 2002). There are different programs for different candidate groups, and these programs support them to earn undergraduate and graduate degrees in education as well as various types of training (NIE, 2015). That is, rather than setting up the minimum requirement for the entry of teaching, Singapore situates NIE as a major research-based training institution to support all prospective teachers to gain professional knowledge, skills, and expertise. Candidates recruited by MOE are financially sponsored by MOE through the process of training (NIE, 2009).

Through the training, pre-service teachers have opportunities to have much discussion, reflection and collaborative learning (Lim-Teo, 2002). Also, Singapore significantly invests leadership development and supports ongoing apprenticeship and professional development (Darling-Hammond & Rothman, 2011). Recently, NIE’s Office of Education Research (OER) established in 2008 especially strengthens the connection between education research and pedagogy, and it especially focuses on making best use of technology into education (NIE, 2009).

One of the recent education policies by Prime Minister Lee has been geared specifically towards enhancement of student learning by teaching less (Ng, 2008). Teach Less, Learn More (TLLM) was initiated by MOE due to the concern that students focus on academic rigor therefore had become passive learners. TLLM aims for “pedagogical advancement and innovation in the teaching and learning process so that the education system may achieve a transformation from quantity to quality” (Ng, 2008, p.7). Through TLLM, schools were given school-based flexibility
in the curriculum as well as more ownership and greater autonomy. Teachers were given 10–20% of curriculum time to freely conceptualize lessons to meet the needs for students as well as 2 hours per week on average for their professional development. Every week, a certain amount of time was scheduled for teachers to reflect, discuss, and plan their lessons together (Singapore MOE, 2005). Although Ng (2008) argues a concern there can be some disconnections between the aims by MOE and teachers’ understanding and interpretation of TLLM, this was nonetheless a huge step for Singapore to shift from quantity to quality of education firmly based on their beliefs that they can rely on teachers as professionals.

**Summary**

Given that de-professionalization of teaching in the U.S. is a critical issue, Chapter 2 first reviewed the historical contexts of the sociology of professions. Although there are different schools of thought how to see and define a profession, and teachers have almost never been recognized as a profession. The review therefore focused on two distinctive commonalities across the sociology of professions: theorized knowledge and technical autonomy. The following section then reviewed the historical contexts of why professionalization in the U.S. had not been well established. It showed the ongoing struggle for the low status of teachers. The disconnection between education researchers in higher education institutions and classroom teachers in K-12 schools also hindered to establish teaching as a profession.

The rhetoric of the media and the U.S. current policy climate may foster distrust towards the current teaching workforce, which hinders us from seeing the current workforce as a potential empowerment to build capital for teaching as a strong profession. In order to address the issues, the next section introduced the concept of professional capital proposed by Hargreaves and Fullan (2012). Professional capital consists of human capital, social capital, and decisional capital, and it
should be fostered at school level through the process of capacity building over time. The last section of Chapter 2 explained the importance of cross-national comparison of teaching as a profession and briefly reviewed how teaching has been seen as a profession in Finland, Japan, and Singapore. It focused on cross-national differences in the basic status of teachers and structure of education system related to teaching as a profession among these four countries. It also drew upon a possibility that the social construction of teaching can significantly vary across different countries.
Chapter 3

Research Methodology

Research questions

After verifying the presence of cross-national variation in the relationship between school-level professional capital components and teachers’ individual perceptions of whether or not their school is a good place to work, this study seeks to address the following research questions (hereafter RQs):

- RQ 1: How much of the variation in school-level professional capital components can be explained by between-school differences in the U.S., Finland, Japan, and Singapore?
- RQ 2: To what degree are school-level professional capital components associated with teachers’ individual perceptions of their school as a good place to work after controlling for basic teacher and school characteristics? How do these associations vary among the U.S., Finland, Japan, and Singapore?

Figure 3-1 next page shows the scope of these two RQs on the theoretical framework of professional capital.
This study utilizes an international large-scale dataset, the Teaching and Learning International Survey (TALIS) 2013, which was released in June 2014. TALIS has been conducted by the Organisation for Economic Co-operation and Development (OECD) since 2008, and TALIS 2013 is the second assessment. In total, 34 countries participated. TALIS seeks to capture teacher perceptions about their schools, working conditions, and learning environments in order to understand how countries prepare the teaching workforce (OECD, 2014b). Primary, lower secondary, and upper secondary education teachers as well as school principals were sampled. In total, more than 10,000 schools and more than 170,000 teachers participated in TALIS 2013 (OECD, 2014b).

The definition of primary, lower secondary, and upper secondary teachers varies across countries. In order to define these secondary education categories, TALIS uses the International Standard Classification of Education (ISCED) 1997 developed by UNESCO Institute for
Statistics (OECD, 2014c). The classification ranges from level 0 to 6, and primary, lower secondary, and upper secondary education fall on level 1, 2, 3, respectively (OECD, 2014c; UNESCO UIS, 2006). TALIS 2013 used a stratified two-stage probability sampling design in order to collect the data (OECD, 2011). For each country, schools were selected with probability proportional to their size at the first stage. The size, for example, is the size of targeted ISCED level teachers in a given school. At the second stage, the teachers were selected with equal probability within each selected school. School questionnaires were then completed in selected schools by the principals with selected teachers filling out an individual-level teacher questionnaire (OECD, 2011).

The core focus of the TALIS 2013 survey is the lower secondary level of education; TALIS required all the participating countries to conduct the survey for their lower secondary education schools and teachers (OECD, 2014c). For this reason, the current study focuses on lower secondary teachers (i.e. ISCED level 2). Furthermore, teachers of various subjects participated in TALIS 2013. In the teacher questionnaire, there are 12 categories for teachers into the subjects that they currently teach: (1) Reading, writing and literature; (2) Mathematics, (3) Science, (4) Social studies, (5) Modern foreign languages, (6) Ancient Greek and/or Latin, (7) Technology, (8) Arts, (9) Physical education, (10) Religion and/or ethics, (11) Practical and vocational skills, and (12) Other. Among these 12 categories, the current study particularly limited the focus to teachers who teach (1) Reading, writing and literature; (2) Mathematics, (3) Science, and (4) Social studies, because these four are main subjects with relatively less variation within and across countries on what to be taught then the other subjects shown above. Similarly, since the licensure and condition of part-time teachers can significantly vary across countries, the current study also limited its analysis to full-time teachers, i.e. those who work more than 90% of full-time hours. Finally, among all lower secondary full-time teachers of main subjects, those who missed the outcome variable, teacher individual perception of their school as a good place to
work, were excluded from the analytical sample (n = 107). The percentage of the excluded teachers is 1.50%, and the total analytical sample is n = 7,060. Table 3-1 below provides the analytical sample from Finland, Japan, Singapore, and the U.S.

Table 3-1. Frequency of the Analytical Sample in the Current Study

<table>
<thead>
<tr>
<th>Country</th>
<th>Teachers</th>
<th></th>
<th></th>
<th>Schools</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>Percent</td>
<td>Freq.</td>
<td>Percent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>1,401</td>
<td>19.84</td>
<td>146</td>
<td>23.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>2,003</td>
<td>28.37</td>
<td>192</td>
<td>31.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>2,329</td>
<td>32.99</td>
<td>159</td>
<td>25.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.</td>
<td>1,327</td>
<td>18.80</td>
<td>122</td>
<td>19.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7,060</td>
<td>100</td>
<td>619</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Variables**

The variables of interest from TALIS 2013 were retrieved through the IDB analyzer ver.3.1.21, a free-of-charge software developed by Data Processing and Research Center (DPC) from The International Association for the Evaluation of Educational Achievement (IEA). Through the process, the IDB analyzer created the syntax to merge the variables of interest from each country’s dataset into a large-scale one. The syntax from the IDB analyzer was implemented on SPSS ver.19. The original SPSS data file was converted into a Stata data file by Stat/Transfer. Stata ver.13 was employed to recode and rename the variables. This section provides the information about all the variables in the current study, namely, the three professional capital component variables to answer RQ 1 and 2, and the outcome variable and both teacher-level and school-level control variables to answer RQ 2.
Professional capital components (RQ 1 and 2)

**Human capital (HC)**

As mentioned above, the idea of professional capital proposed by Hargreaves and Fullan (2012) is rather conceptual therefore to some extent vague. The basic feature of human capital refers to “the requisite knowledge and skills” (Hargreaves & Fullan, 2012, p.89). However, it covers various aspects ranging from teachers’ emotional capabilities to passion and moral commitment, especially emphasizing teachers’ capability and commitment coming along together. Among these factors, as shown in the literature review, teachers’ collective sense of efficacy in their classroom and student management, and instructional practices can play a significant role as school-level human capital to raise and sustain professional capital. Utilizing a composite available from TALIS 2013, therefore, the current study seeks to capture one of these critical components of human capital: teacher efficacy in classroom management, instruction, and student engagement.

The teacher self-efficacy scale at the individual level is the average value of the three scales, efficacy in classroom management, efficacy in instruction, and efficacy in student engagement (OECD, 2014c). Each scale was measured by 4 items from the TALIS 2013 teacher questionnaire. Table 3-2 next page shows the question items that were used to measure the three subscales.
## Table 3-2. Measurement Items of Three Teacher Efficacy Scales

<table>
<thead>
<tr>
<th>Question</th>
<th>In your teaching, to what extent can you do the following?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response category</td>
<td>1 = “not at all”, 2 = “to some extent”, 3 = “quite a bit”, and 4 = “a lot”</td>
</tr>
</tbody>
</table>

### I. Efficacy in classroom management

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item wording</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT2G34D</td>
<td>Control disruptive behaviour in the classroom</td>
</tr>
<tr>
<td>TT2G34F</td>
<td>Make my expectations about student behaviour clear</td>
</tr>
<tr>
<td>TT2G34H</td>
<td>Get students to follow classroom rules</td>
</tr>
<tr>
<td>TT2G34I</td>
<td>Calm a student who is disruptive or noisy</td>
</tr>
</tbody>
</table>

### II. Efficacy in instruction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item wording</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT2G34C</td>
<td>Craft good questions for my students</td>
</tr>
<tr>
<td>TT2G34J</td>
<td>Use a variety of assessment strategies</td>
</tr>
<tr>
<td>TT2G34K</td>
<td>Provide an alternative explanation for example when students are confused</td>
</tr>
<tr>
<td>TT2G34L</td>
<td>Implement alternative instructional strategies in my classroom</td>
</tr>
</tbody>
</table>

### III. Efficacy in student engagement

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item wording</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT2G34A</td>
<td>Get students to believe they can do well in school work</td>
</tr>
<tr>
<td>TT2G34B</td>
<td>Help my students value learning</td>
</tr>
<tr>
<td>TT2G34E</td>
<td>Motivate students who show low interest in school work</td>
</tr>
<tr>
<td>TT2G34G</td>
<td>Help students think critically</td>
</tr>
</tbody>
</table>


Regarding all lower secondary (i.e. ISCED level-2) teachers, the overall coefficient alpha were $\alpha = 0.843$ for efficacy in classroom management, $\alpha = 0.794$ for efficacy in instruction, and $\alpha = 0.830$ for efficacy in student engagement. In all the four countries the coefficient alpha of these three subscales were greater than 0.6. Confirmatory Factor Analysis (CFA) was used to construct and evaluate these three latent variables regarding teachers’ efficacy (OECD, 2014c for the further details on the CFA results). From the model evaluation, OECD (2014c) reported that the cross-national variance of these latent variables were relatively small. Each latent variable was converted into a convenience metric, where the mean is 10 and the standard deviation is 2.0.
These three variables were averaged into one scale, teacher self-efficacy. This means if the value of the teacher self-efficacy scale is above 10, the individual teacher consistently agreed with these item statements. On the contrary, if the value is below 10, it indicates the individual teacher consistently disagreed with these item statements. The current study uses the school-level average of teacher self-efficacy scale as the most critical human capital component because professional capital is conceptualized as identical with school-level capital. However, individual-level self-efficacy was also used in the model to answer RQ 2 for the purpose of controlling for individual-level teacher self-efficacy.

Based on the conceptual definition of human capital by Hargreaves and Fullan (2012), some other variables are indeed considered as school-level human capital. Although the main focus of the current study is the school-level average teacher self-efficacy scale, for example, some variables—school-level percentage of teachers who got bachelor’s degree or higher, school-level percentage of participation in teacher education or training program—are categorized as human capital at a given school. However, among the analytical sample (n=7,060), 99.87% of the teachers received Bachelor’s degree or Master’s degree. Although the current study recognizes that there will be some distinctions between Bachelor’s degree holders and Master’s degree holders, they are categorized altogether as ISCED 5a in TALIS 2013. Therefore, the difference between Bachelor’s degree holders and Master’s degree holders, if any, cannot be detected. Also, 99.62% of them completed a teacher education or training program. That means, almost all the teachers of the analytical sample received the required or advanced knowledge from higher education institutions. For these reasons, these variables were not taken into account in the models of this study.
Social capital (SC1 and SC2): two ways to capture its characteristics

As shown in Chapter 2, social capital based on the concept of professional capital refers to “how the quantity and quality of interactions and social relationship among people affects their access to knowledge and information” (Hargreaves & Fullan, 2012, p.90). In this sense, interactions among teachers about specific materials and subject topics, and meetings and observations for strategic teaching are of interest. However, this aspect may heavily depend on the structure of schooling. For example, at schools where there are obligations to participate in these meetings, their participation itself might not necessarily capture how much they actively collaborate together for the better. Since Hargreaves and Fullan (2012) especially emphasize that social capital plays a critical role to generate collaborative responsibility and accumulated knowledge and information, it is also important to take into consideration whether there overall exists a mutually supportive community at a given school. Therefore, the current study uses two variables and analyzes them separately: (1) teacher co-operation and (2) collaborative school culture. As explained in the following sections, these two variables operationalize different features of social capital component of professional capital. Because there has been little attempt to operationalize professional capital by Hargreaves and Fullan (2012) in the existing literature, the current study chose to analyze them separately rather than creating a composite variable from these two, in order to explore how differently these two variables are associated with whether or not teachers feel their school as a good place to work.

Teacher co-operation scale (SC1) is a composite from TALIS 2013, operationalized as the first case, the structural aspect of social capital in the current study. It is the average value of two subscales: exchange and coordination for teaching scale and professional collaboration scale (OECD, 2014c). Each scale was measured by 4 items from the TALIS 2013 teacher
questionnaire. Table 3-3 next page shows the question items that were used to measure these two subscales.

Table 3-3. Measurement Items of Two Teacher Co-Operation Scales

<table>
<thead>
<tr>
<th>Question</th>
<th>Response category</th>
</tr>
</thead>
<tbody>
<tr>
<td>On average, how often do you do the following in this school?</td>
<td></td>
</tr>
<tr>
<td>1 = “never”, 2 = “once a year or less”, 3 = “2-4 times a year”, 4 = “5-10 times a year”, 5 = “1-3 times a month”, and 6 = “once a week or more”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I. Exchange and Coordination for Teaching</th>
<th>Item wording</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT2G33D</td>
<td>Exchange teaching materials with colleagues</td>
</tr>
<tr>
<td>TT2G33E</td>
<td>Engage in discussions about the learning development of specific students</td>
</tr>
<tr>
<td>TT2G33F</td>
<td>Work with other teachers in my school to ensure common standards in evaluations for assessing student progress</td>
</tr>
<tr>
<td>TT2G33G</td>
<td>Attend team conferences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Professional Collaboration</th>
<th>Item wording</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT2G33A</td>
<td>Teach jointly as a team in the same class</td>
</tr>
<tr>
<td>TT2G33B</td>
<td>Observe other teachers’ classes and provide feedback</td>
</tr>
<tr>
<td>TT2G33C</td>
<td>Engage in joint activities across different classes and age groups (e.g. projects)</td>
</tr>
<tr>
<td>TT2G33H</td>
<td>Take part in collaborative professional learning</td>
</tr>
</tbody>
</table>


Regarding all lower secondary (i.e. ISCED level-2) teachers, the overall coefficient alpha were $\alpha = 0.713$ for exchange and coordination for teaching, and $\alpha = 0.599$ for professional collaboration. Among those four countries, the coefficient alpha of professional collaboration was below 6.0 only in Japan ($\alpha = 0.499$). The procedure to construct the latent variable is the same for the teachers’ self-efficacy scale above (OECD, 2014c for the further details on the CFA results). These two latent variables were converted into a convenience metric, where the mean is 10 and the standard deviation is 2.0. These two variables were averaged into one scale, teacher co-operation. This means if the value of the teacher co-operation is above 10, the individual teacher
consistently agreed with these item statements. Since professional capital is conceptualized as a school-level capital, this variable was also aggregated to the school level, that is, the school-level average of teacher co-operation scale as the first case, the structural feature of social capital component.

*Collaborative school culture (SC2)* is operationalized as the second case, the holistic aspect of social capital component. More specifically, teachers were asked how much they agree with the statement, “There is a collaborative school culture which is characterised by mutual support” from the teacher questionnaire. In response to the question item, lower secondary (ISCED level-2) teachers answered from the list of choices: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Their responses were recoded as a binary variable: 0 = strongly disagree or disagree, 1 = strongly agree or agree, and aggregated to the school-level. This variable, as the second case, the holistic feature of social capital component, indicates the percentage of teachers who agreed that there is a collaborative school culture which is characterized by mutual support at a given school.

*Decisional capital (DC)*

Decisional capital operationalizes whether or not teachers agree with the statement, “This school provides staff with opportunities to actively participate in school decisions” from the teacher questionnaire. Their school principals were asked the same question to evaluate school climate of their schools. However, the current study focuses particularly on the teachers’ perception because the degree of their school principals’ agreement with the statement were higher than that of teachers in all the countries, and there exists statistically significant gap between them. The concept of decisional capital that Hargreaves and Fullan (2012) promote is more than how much a school principal feels like providing opportunities or than how much
teachers are autonomous for their instructions in their classrooms. Thus, decisional capital operationalized by this item can capture how much teachers feel their school has a capacity for collective judgment and thus collective responsibility as a whole. In response to the question item, lower secondary (ISCED level-2) teachers answered from the list of choices: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Their responses were recoded as a binary variable: 0 = strongly disagree or disagree, 1 = strongly agree or agree, and aggregated to the school-level. Therefore, this variable indicates the percentage of teachers who agreed that their school provides staff with opportunities to actively participate in school-level decisions.

**Outcome variable (RQ 2)**

The outcome variable to respond RQ 2 is a binary variable: whether or not teachers feel their school as a good place to work. In the teacher questionnaire, teachers were asked how much they agree with the statement, “I would recommend my school as a good place to work,” and in response to the question item, teachers answered from the list of choices: (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Their responses were recoded as binary: 0 = strongly disagree or disagree, 1 = strongly agree or agree, and this was used as the outcome variable at the individual level.

**Control variables (RQ 2)**

Teacher-level control variables are: (1) gender, (2) permanent employment status, (3) years of teaching at the current school, and (4) individual teacher self-efficacy. Gender is a binary variable, of which female was recoded as 1 and male as 0. Teacher permanent employment status is also a binary variable on whether or not an individual teacher has “an on-going contract with
no-fixed end-point before the age of retirement” retrieved from the teacher questionnaire, and those who have the contract were recoded as 1 and all the others as 0. Years of teaching at the current school represents actual years of working as a teacher at the current school. Finally, the HGLM model to answer RQ 2 also includes individual teacher self-efficacy scale as a teacher-level control variable.

School-level control variables are: (1) percentage of students from economically disadvantaged homes3, (2) student-teacher ratio, and (3) school size. As for the percentage of students from economically disadvantaged home, the school questionnaire asked principals to “estimate the broad percentage of [the ISCED level 2] students in this school who have the following characteristics,” and one of the items was “students from socioeconomically disadvantaged homes”. Principals answered from the list of choices: (1) none, (2) 1% to 10%, (3) 11% to 30%, (4) 31% to 60%, and (5) more than 60%. Their responses were recoded as each median, i.e. “none” as 0, “1-10%” as 5, “11-30%” as 21, “31-60%” as 46, and “more than 60%” as 71. Student-teacher ratio is the number of total students was divided by total teachers at a given school. School size is the number of total students at a given school scaled down to 1/100.

Statistical procedures to answer research questions

Descriptive statistics and missing data

Before answering two RQs, descriptive statistics were computed through Stata ver.13. The final teacher weight (TCHWGT) was used for the teacher-level variables and aggregated variables to the school level. The final school weight (SCHWGT) was used for the school-level

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Socioeconomically disadvantaged homes refer to “homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition, or medical care” on the TALIS 2013 school questionnaire.
variables which represent their principal responses (OECD, 2014b). Missing data from the main variables at the teacher level, i.e. three professional capital components and outcome variable, were less than 0.6%, and missing data of all the variables were less than 8% (e.g. Schlomer, Bauman, & Card, 2010 regarding the cutoff point). The current study implemented a list-wise deletion when running the analyses (cf. Peng, Harwell, Liou, & Ehman, 2006). Table 3-4 below shows the percentage of missing data of all the variables in the current study.

Table 3-4. Missing Data of the Variables Used in the Current Study

<table>
<thead>
<tr>
<th>Teacher-level (n = 7,060)</th>
<th>School level (n = 619)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
<td><strong>Missing</strong></td>
</tr>
<tr>
<td><strong>Professional capital components</strong></td>
<td></td>
</tr>
<tr>
<td>HC: teacher efficacy</td>
<td>0.23%</td>
</tr>
<tr>
<td>SC1: teacher co-operation</td>
<td>0.01%</td>
</tr>
<tr>
<td>SC2: collaborative school culture</td>
<td>0.52%</td>
</tr>
<tr>
<td>DC: school-level decisions</td>
<td>0.37%</td>
</tr>
<tr>
<td><strong>Teacher-level controls</strong></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.00%</td>
</tr>
<tr>
<td>Permanent employment status</td>
<td>0.40%</td>
</tr>
<tr>
<td>Years of teaching at the current school</td>
<td>0.44%</td>
</tr>
</tbody>
</table>

RQ 1: Calculating the intraclass correlation coefficients (ICCs)

The current study sees those three professional capital components as school-level variables. In this sense, the between-school variance can be observed from the standard deviations of the aggregated variables. However, the concept of professional capital also

---

4 Missing data of the aggregated variables are shown at the teacher level.
appreciates individual teacher’s contribution to those school-level professional capital components. In response to RQ 1, therefore, the between-school variances of those three professional capital components were analyzed by the standard deviations reported with the descriptive statistics as well as the intraclass correlation coefficients (ICCs).

The intraclass correlation coefficient (ICC) is calculated for each of the professional capital components. The ICC is “the proportion of variance that is between clusters, that is, the proportion of variance that can be explained by the clustering or grouping structure” (McCoach, 2010, p.134). The ICC, therefore, is calculated as

\[ \rho = \frac{\tau_{00}}{\tau_{00} + \sigma^2} \]

where \( \tau_{00} \) represents between-cluster variance and \( \sigma^2 \) represents within-cluster variance.

According to McCoach (2010), the ICC ranges from 0.10 to 0.20 in school-effect research. In order to compute ICCs for those three professional capital components, teacher-level teacher efficacy (HC), teacher co-operation (SC1), collaborative school culture (SC2), and school-level decisions (DC) were used. Whereas teacher efficacy and teacher co-operation are continuous, collaborative school culture, and school-level decisions are dichotomous. The ICCs for continuous variables were computed through the formula using the results of the unconditional multi-level linear regression models, whereas the ICCs for dichotomous variables were retrieved from the results of the unconditional multi-level logistic regression models (StataCorp, 2013). It should be noted that when a variable is dichotomous, the actual level-1 variance can be larger or smaller than assumed (Raudenbush & Bryk, 2002). For this reason, simple comparison across the focused four countries was made for the ICCs of the dichotomous variables. Stata ver.13 was employed to gain all the ICCs.
RQ 2: Constructing a two-level Hierarchical Generalized Linear Model (HGLM)

The main focus of RQ 2 is whether teachers agree with their school as a good place to work and how it is related to those three school-level professional capital components after controlling for basic teacher and school characteristics. Due to the nested structure of the data, (i.e. teachers nested within schools) with a dichotomous outcome variable, the two-level Hierarchical Generalized Linear Modeling (HGLM) was employed to answer RQ 2. HLM ver.7 was used for this analysis. Since the interest is how those three professional capital components are differently associated with the outcome variable across Finland, Japan, Singapore, and the U.S., the current study employs the same model for these countries and run the model separately for each country. That is, the purpose of this analysis is to compare the significance, magnitude, and directions of the relationship between those three professional capital components and the outcome variable across these four countries.

The outcome variable, whether teachers agree with their school as a good place to work, is dichotomous (i.e. 1=strongly agree or agree, 0=strongly disagree or disagree) and also a single outcome variable per teacher, Bernoulli was chosen as the appropriate model type. The ICCs of the outcome variable were 0.19 in Finland, 0.26 in Japan, 0.11 in Singapore, and 0.32 in the U.S., respectively. Also, the correlation matrices of the variables used in the model were provided in Appendix B-E for each country. For the level-1 HGLM, the probability model is

\[ \text{Prob}(\text{Good school}_{ij} = 1| \beta_{ij}) = \phi_{ij} \]

where \( \phi_{ij} \) is the probability of a teacher’s agreement with the statement that “I would recommend my school as a good place to work,” under the conditions of level-1 coefficients \( \beta_{ij} \). Meanwhile, the link function is
\[
\log \left[ \frac{\phi_{ij}}{1 - \phi_{ij}} \right] = \eta_{ij}
\]

With this logistic function as the link function, the outcome variable changes its range from \(-\infty\) to \(+\infty\) otherwise it is bounded between 0 and 1, so that it can be analyzed as a linear model (Agresti, 2007; Raudenbush & Bryk, 2002). The unconditional model is

\[
\eta_{ij} = \beta_{0j}
\]

where the level-2 model is

\[
\beta_{0j} = \gamma_{00} + u_{0j}, \quad u_{0j} \sim N(0, \tau_{00})
\]

\(\gamma_{00}\) is the average log-odds of agreement across schools in a given country, and \(\tau_{00}\) is the variance between schools in school-average log-odds of agreement. That is, this null model gives the information the variance component of \(u_{0j}\), the random effect associated with unit \(j\), therefore, school \(j\).

Next, the level-1 linear model of the current study is

\[
\eta_{ij} = \beta_{0j} + \beta_{1j}(\text{individual teacher efficacy}) + \beta_{2j}(\text{female})
\]

\[
\quad + \beta_{3j}(\text{permanent employment status})
\]

\[
\quad + \beta_{4j}(\text{years of teaching at the school}) + r
\]
\( \beta_{0j} \) is the intercept, \( \beta_{1j} \) through \( \beta_{4j} \) are coefficients of the level-1 variables, and \( r \) is the error term. Except dichotomous variables (i.e. female and permanent employment status), the level-1 variables have been centered around the group mean. The level-2 is a random intercept model given based on the two cases of social capital, that is, either school-level teacher co-operation or school-level collaborative school culture is incorporated in the model as the social capital component.

**Case 1: Teacher co-operation as social capital**

\[
\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{school teacher efficacy}) + \gamma_{02}(\text{school teacher co-operation})
+ \gamma_{03}(\text{school level decisions})
+ \gamma_{04}(\text{poverty}) + \gamma_{05}(s\_t\text{ ratio}) + \gamma_{06}(\text{school size}) + u_{0j}
\]

**Case 2: Collaborative school culture as social capital**

\[
\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{school teacher efficacy}) + \gamma_{02}(\text{collaborative school culture})
+ \gamma_{03}(\text{school level decisions})
+ \gamma_{04}(\text{poverty}) + \gamma_{05}(s\_t\text{ ratio}) + \gamma_{06}(\text{school size}) + u_{0j}
\]

\[
\beta_{1j} = \gamma_{10}
\]
\[
\beta_{2j} = \gamma_{20}
\]
\[
\beta_{3j} = \gamma_{30}
\]
\[
\beta_{4j} = \gamma_{40}
\]
\[ \beta_{5j} = \gamma_{50} \]
\[ \beta_{6j} = \gamma_{60} \]

where \( \gamma_{00} \) through \( \gamma_{60} \) are intercepts of the level-1 coefficients, and \( \gamma_{01} \) through \( \gamma_{06} \) are coefficients of the level-2 variables. All the level-2 variables have been centered around the ground mean. Since the current study is interested in how a change in the outcome variable can be expected to affect the overall population mean in a given country, population-average estimates with the robust standard errors were referred as the results (Raudenbush & Bryk, 2002). Finally, since the unit of the analysis is nonetheless teachers, the final teacher weight (TCHWGT) was used as the level-1 weight to run these models for each country (OECD, 2014b).
Chapter 4

Empirical Results

This chapter represents the empirical results of this study. The first section provides the descriptive statistics of the variables used in this study. The outcome variable was whether or not individual teachers agreed with that they would recommend their school as a good place to work. The main explanatory variables are three professional capital components: (1) human capital (HC), indicated by the average teacher efficacy at a school; (2) two social capital components (SC1 and SC2), the average teacher co-operation at a school and the average percentage of teachers who agreed there is a collaborative school culture at a school; and (3) decisional capital, measured by the average percentage of teachers who agreed their school staff can get involved in school-level decisions at a school (DC). The descriptive statistics of teacher- and school-level control variables are also provided.

The next section shows the empirical results in response to RQ 1: How much of the variation in school-level professional capital components can be explained by between-school differences in the U.S., Finland, Japan, and Singapore? The results on ICCs of these three professional capital components are provided. The last section provides the empirical results in response to RQ2: To what degree are school-level professional capital components associated with teachers’ individual perceptions of their school as a good place to work after controlling for basic teacher and school characteristics? How do these associations vary among the U.S., Finland, Japan, and Singapore? The results from the cross-national HGLM among the U.S., Finland, Japan, and Singapore are provided.
Descriptive statistics

Table 4-1 below shows the descriptive statistics of the variables of interest in the current study by country.

| Table 4-1. Descriptive Statistics of the Variables of Interest in the Current Study |
|---------------------------------|------------------|------------------|-----------------|------------------|
| | Finland | Japan | Singapore | U.S. |
| | M (SD) | M (SD) | M (SD) | M (SD) |
| **Outcome variable (teacher-level)** | | | | |
| School as a good place to work | 0.88 (0.33) | 0.62 (0.49) | 0.73 (0.44) | 0.85 (0.36) |
| **Professional capital components (school-level)** | | | | |
| HC: teacher efficacy | 11.96 (0.71) | 9.12 (0.61) | 12.04 (0.56) | 12.63 (0.83) |
| SC1: teacher co-operation | 9.53 (0.77) | 10.05 (0.67) | 10.79 (0.55) | 9.68 (1.09) |
| SC2: collaborative school culture | 0.80 (0.20) | 0.83 (0.16) | 0.82 (0.12) | 0.68 (0.21) |
| DC: school-level decisions | 0.76 (0.20) | 0.77 (0.21) | 0.75 (0.21) | 0.67 (0.22) |
| **Teacher-level control variables** | | | | |
| Teacher efficacy | 11.96 (1.85) | 9.10 (1.61) | 12.05 (2.11) | 12.67 (1.82) |
| Female | 0.69 (0.46) | 0.31 (0.46) | 0.67 (0.47) | 0.65 (0.48) |
| Permanent employment status | 0.78 (0.41) | 0.84 (0.36) | 0.90 (0.30) | 0.69 (0.46) |
| Years of teaching at the current school | 10.36 (8.62) | 4.31 (5.12) | 5.22 (5.62) | 8.17 (7.20) |
| **School-level control variables** | | | | |
| % of students from disadvantaged homes | 9.69 (9.63) | 12.07 (12.07) | 15.61 (12.79) | 41.70 (23.18) |
| Student-teacher ratio | 10.03 (2.41) | 20.34 (54.52) | 13.98 (1.90) | 14.90 (7.82) |
| School size (1/100) | 3.48 (1.93) | 3.57 (2.82) | 12.51 (4.03) | 5.67 (4.60) |

Regarding the outcome variable, whether or not teachers agree with that they would recommend their school is a good place to work, the mean indicates the percentage of teachers who agreed with the statement on average. In Finland and the U.S., more than 80% of the teachers agreed that
their school is a good place to work (Finland = 88%, the U.S. = 85%). In Japan, the percentage of the teachers in agreement was only 62%, and it was 73% in Singapore.

As for the three professional capital components, some differences were observed mainly between the U.S. and the other countries. The first professional capital component is human capital (HC), that is, school-level teacher efficacy. As shown in Chapter 3, when the value of the teacher self-efficacy scale is above 10, it indicates that the individual teacher consistently agreed with item statements that the composite variable was made of. As the human capital component of professional capital, the values in Table 4-1 are the means of the school-level aggregate in each country. The average school-level teacher efficacy was highest in the U.S., with a score of 12.63. Finland (M=11.96) was relatively lower than Singapore (M=12.04) and the U.S. (M=12.63). Japan had the lowest teacher efficacy score (M=9.12), which indicates teachers in Japan, on average, tend not to agree with that they have efficacy in classroom management, instruction, and student engagement. As discussed in the following section in response to RQ 1, the percentage of the between-school variation of the school-level teacher efficacy (i.e. ICC) was the smallest of all the professional capital components across these four countries. Overall, teacher efficacy at the school-level was the highest in the U.S. followed by Singapore, Finland, and Japan in this order.

The second professional capital component is social capital, and there are two measures used to operationalize social capital: teacher co-operation (SC1) and collaborative school culture (SC2). The variable structure of SC1 is similar to HC. The value of 10 indicates that teachers exchange information and coordinate their teaching or otherwise professionally collaborate in their school between 2 and 10 times a year on average. In Finland and the U.S., teachers note such co-operative interactions are held less than 2 times a year on average (Finland: M=9.53; the

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5 Although Table 4-1 also shows the means of the individual-level teacher efficacy scale as one of the teacher-level control variables, the values are quite similar to the school-level means. Therefore, the descriptions of the means of the individual-level teacher efficacy scale were omitted.  
6 Some cultural differences were observed in terms of how one self-evaluates one’s efficacy, which is discussed in Chapter 5.
Teacher co-operation in Japan was slightly above 10 (M=10.05), and teacher co-
operation was highest in Singapore (M=10.79). Meanwhile, SC2 indicates the average percentage
of teachers who agreed that there is a collaborative school culture at a school. Descriptive
statistics show that whereas in Finland, Japan, and Singapore, 80% or more teachers agreed with
that their school has a collaborative school culture characterizing by mutual support (Finland =
80%; Japan: 83%; Singapore: 82%), however, only 68% of the U.S. teachers agreed with the
statement.

The third professional capital component is decisional capital. The descriptive statistics
show the school-level average percentage of teachers who agreed with that their school provides
staff with opportunities to actively participate in school decisions. The values have a similar
pattern as seen in SC2. In Finland, Japan, and Singapore, 75% or more of the teachers agreed that
their school provides staff with opportunities to actively participate in school decisions (Finland =
76%; Japan: 77%; Singapore: 75%). However, only 67% of the U.S. teachers agreed with this
statement.

Focusing on the standard deviations of these three professional capital components to
understand the between-school variance, the U.S. has the largest standard deviations of all these
professional capital components among the four countries (HC: M = 12.63, SD = 0.83; SC1: M =
9.68, SD = 1.09; SC2: M = 0.68, SD = 0.21; DC: M = 0.67, SD = 0.22). The between-school
variance was large especially compared to that of Singapore (HC: M = 12.04, SD = 0.56; SC1: M
= 10.79, SD = 0.55; SC2: M = 0.82, SD = 0.12; DC: M = 0.75, SD = 0.21). Among these three
professional capital components, however, there was not much difference in the standard
deviations of decisional capital variable among the four countries.

Regarding control variables, some of the variables show some differences across the four
countries. For example, compared to the other three countries, only 31% of the teachers are
female in Japan (Finland = 69%; Singapore = 67%; the U.S. = 65%). Among the U.S. teachers,
only 69% are employed with on-going contracts with no-fixed end-point before the age of retirement. This is lower than any of the other three countries (Finland = 78%; Japan = 84%; Singapore = 90%). Finally, there is a stunning difference between the U.S. and the other three countries in terms of the percentage of students from economically disadvantaged homes. In the U.S., at a school on average, 41.7% of students come from economically disadvantaged homes. This percentage is much larger than those in Finland (9.7%), Japan (12.1%), and Singapore (15.6%).

**RQ 1: Calculating the intraclass correlation coefficients (ICCs)**

The first research question was: *How much of the variation in school-level professional capital components can be explained by between-school differences in the U.S., Finland, Japan, and Singapore?* In the previous section on descriptive statistics, the standard deviations of the three school-level professional capital components were briefly explained. In addition, the intraclass correlation coefficients (ICCs) for the three professional capital components were calculated per country in order to observe the proportion of variance that can be explained by school. Table 4-2 next page shows the ICCs of teacher efficacy (HC), teacher co-operation (SC1), collaborative school culture (SC2), and school-level decisions (DC) for Finland, Japan, Singapore, and the U.S.
Table 4-2. Intraclass Correlation Coefficients (ICCs) of Three Professional Capital Components

<table>
<thead>
<tr>
<th>Professional capital components (school-level)</th>
<th>Finland ICC</th>
<th>Japan ICC</th>
<th>Singapore ICC</th>
<th>U.S. ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HC: teacher efficacy</td>
<td>0.02</td>
<td>0.04</td>
<td>0.00</td>
<td>0.02</td>
</tr>
<tr>
<td>SC1: teacher co-operation</td>
<td>0.13</td>
<td>0.09</td>
<td>0.04</td>
<td>0.20</td>
</tr>
<tr>
<td>Dichotomous variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC2: collaborative school culture</td>
<td>0.24</td>
<td>0.17</td>
<td>0.06</td>
<td>0.09</td>
</tr>
<tr>
<td>DC: school-level decisions</td>
<td>0.19</td>
<td>0.23</td>
<td>0.04</td>
<td>0.12</td>
</tr>
</tbody>
</table>

The between-school variation of these professional capital components were rather small, especially in Singapore. Also, there is little variation in teacher efficacy as human capital across all the four countries. This means that much of the variation in teacher efficacy can be explained at the individual teacher level, indicating that the school-level HC may not be significant in response to RQ 2 after controlling for the individual teacher’s efficacy scale. As for the first case of social capital, teacher co-operation, the between-school variance was relatively high in Finland (13%) and the U.S. (20%). Meanwhile, the between-school variance in teacher co-operation was only 9% in Japan and 4% in Singapore. The between-school variance in SC2, collaborative school culture, was highest in Finland (24%) and relatively high in Japan (17%). In Singapore and the U.S., the variance was less than 10%. Finally, relatively high between-school variance in DC was seen in Finland (19%), Japan (23%), and the U.S. (12%). Whereas in Japan, 23% of the variance in DC was explained by differences between schools, only 4% of the variance was explained by differences between schools in Singapore. In the U.S., meanwhile, the between-school variation (12%) was almost a half of that in Japan (23%). This results indicate that the size of the between-school variation in how much school staff can get involved in school-level decisions varies across these countries.
RQ 2: Results of HGLM analyses

The second research question was: *To what degree are school-level professional capital components associated with teachers’ individual perceptions of their school as a good place to work after controlling for basic teacher and school characteristics? How do these associations vary among the U.S., Finland, Japan, and Singapore?* As described in Chapter 3, a two-level Hierarchical Generalized Linear Model (HGLM) was employed due to the nested structure of the data and the dichotomous structure of the outcome variable. Since two cases—i.e. SC1: teacher co-operation and SC2: collaborative school culture—were separately considered, the same HGLM model for these two cases was run respectively. First, Table 4-3 next page shows the HGLM analysis of whether or not teachers feel their school as a good place to work and three professional capital components for Case 1: teacher co-operation as social capital.
Table 4-3. HGLM Analysis of Whether or Not Teachers Feel Their School as a Good Place to Work and Three Professional Capital Components in Case 1: Teacher Co-Operation as Social Capital

<table>
<thead>
<tr>
<th></th>
<th>Finland</th>
<th>Japan</th>
<th>Singapore</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff. (S.E.)</td>
<td>Odds ratio</td>
<td>Coeff. (S.E.)</td>
<td>Odds ratio</td>
</tr>
<tr>
<td>For INTRCPT 1: $\beta_0$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HC: teacher efficacy, $Y_{01}$</td>
<td>0.007 (0.166)</td>
<td>1.007</td>
<td>0.177 (0.140)</td>
<td>1.193</td>
</tr>
<tr>
<td>SC1: teacher co-op., $Y_{02}$</td>
<td>0.067 (0.159)</td>
<td>1.070</td>
<td>0.033 (0.138)</td>
<td>1.034</td>
</tr>
<tr>
<td>DC: school-level decisions, $Y_{03}$</td>
<td>3.396*** (0.469)</td>
<td>29.86</td>
<td>2.573*** (0.398)</td>
<td>13.11</td>
</tr>
<tr>
<td>% of students disadv., $Y_{04}$</td>
<td>0.002 (0.008)</td>
<td>1.002</td>
<td>-0.008 (0.007)</td>
<td>0.992</td>
</tr>
<tr>
<td>Student-teacher ratio, $Y_{05}$</td>
<td>-0.034 (0.061)</td>
<td>0.966</td>
<td>0.002 (0.001)</td>
<td>1.002</td>
</tr>
<tr>
<td>School size (1/100), $Y_{06}$</td>
<td>0.136 (0.076)</td>
<td>1.146</td>
<td>0.003 (0.029)</td>
<td>1.003</td>
</tr>
<tr>
<td>INTRCPT2, $Y_{00}$</td>
<td>2.821*** (0.337)</td>
<td>16.79</td>
<td>0.656*** (0.153)</td>
<td>1.928</td>
</tr>
<tr>
<td>For “individual teacher efficacy” slope: $\beta_1$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{10}$</td>
<td>$0.121^*$(0.056)</td>
<td>1.129</td>
<td>$0.071^*$(0.035)</td>
<td>1.073</td>
</tr>
<tr>
<td>For “female” slope: $\beta_2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{20}$</td>
<td>-0.406 (0.211)</td>
<td>0.666</td>
<td>-0.181 (0.112)</td>
<td>0.834</td>
</tr>
<tr>
<td>For “permanent employment status” slope: $\beta_3$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{30}$</td>
<td>-0.510 (0.282)</td>
<td>0.600</td>
<td>-0.099 (0.147)</td>
<td>0.906</td>
</tr>
<tr>
<td>For “years of teaching at the school” slope: $\beta_4$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{40}$</td>
<td>-0.011 (0.013)</td>
<td>0.989</td>
<td>0.002 (0.014)</td>
<td>1.002</td>
</tr>
<tr>
<td>Final estimation of variance components of INTRCPT, $u_0$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0) Null model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>0.76795</td>
<td>0.96866</td>
<td>0.60161</td>
<td>1.06323</td>
</tr>
<tr>
<td>Variance comp.</td>
<td>0.58975</td>
<td>0.93829</td>
<td>0.36193</td>
<td>1.13046</td>
</tr>
<tr>
<td>$\chi^2$ (d. f.)</td>
<td>227.36*** (145)</td>
<td>541.30*** (187)</td>
<td>289.30*** (141)</td>
<td>260.99*** (97)</td>
</tr>
<tr>
<td>(1) Random intercept model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>0.33326</td>
<td>0.77014</td>
<td>0.37348</td>
<td>0.57705</td>
</tr>
<tr>
<td>Variance comp.</td>
<td>0.11106</td>
<td>0.59312</td>
<td>0.13948</td>
<td>0.33299</td>
</tr>
<tr>
<td>$\chi^2$ (d. f.)</td>
<td>172.67* (139)</td>
<td>431.19*** (181)</td>
<td>191.49** (134)</td>
<td>156.98*** (91)</td>
</tr>
</tbody>
</table>

Notes. Weighted. *p<0.05, **p<0.01, ***p<0.001. Population-average model with robust standard errors.
Regarding the three professional capital components at the school level, teacher efficacy as a measure of human capital was not statistically significant after controlling for teacher-level teacher efficacy. Additionally, teacher co-operation as a measure of social capital was not statistically significant in any country. Although not significant, it is interesting that the coefficient of the U.S. was negative. Among these three professional capital components in this model, school-level decisions as a proxy for decisional capital was statistically significant in all the countries at the p<0.001 level. The magnitude was relatively large compared to the other variables. The odds ratios indicate that a one unit increase in school-level decisions (DC) from the grand mean is associated with significant increase in a teacher’s odds of perceiving the current school to be a good place to work in Finland (OR = 29.86; 95% CI: 11.8-75.5; p<0.001), Japan (OR = 13.11; 95% CI: 6.04-28.5; p<0.001), Singapore (OR = 24.32; 95% CI: 9.42-62.8; p<0.001), and the U.S. (OR = 36.86; 95% CI: 7.51-180.9; p<0.001).

Regarding the school-level control variables, the percentage of students from economically disadvantaged homes was statistically significant only in the U.S. The odds ratio indicates that one percent increase in the percent of students from economically disadvantaged homes is associated with a 2.8% decrease in the likelihood a teacher perceives the current school to be a good place to work in the U.S. (OR = 0.972; 95% CI: 0.96-0.99; p<0.001). Only in Singapore, there was a statistically significant negative association between student-teacher ratio and the outcome variable. This indicates the increase of students per teacher is significantly associated with the decrease of teachers’ perception of the current school to be a good place to work in Singapore. Finally, for the teacher-level control variables, individual teacher efficacy was statistically significant and positively associated with teachers’ perception of the current school to be a good place to work in all the countries. The relationship between permanent employment status and the outcome variable was statistically significant in Singapore and the U.S. Permanent employment status was negatively associated with teachers’ perception of the current school to be
a good place to work in Singapore, whereas it was positively associated with teachers’ perception of the current school to be a good place to work in the U.S. Especially in the U.S., being a permanent employee is associated with 61.2% increase in the likelihood a teacher perceives the current school to be a good place to work (OR = 1.612; 95% CI: 1.09-2.38; p<0.01).

Table 4-4 next page shows the HGLM analysis of whether or not teachers feel their school as a good place to work and three professional capital components for Case 2: collaborative school culture as social capital. Teacher efficacy (HC) was not statistically significant after controlling for teacher-level teacher efficacy. This is the same pattern as in Case 1. However, collaborative school culture (SC2) was statistically significant in Finland (OR = 12.54; 95% CI: 3.99-39.4; p<0.001), Japan (OR = 35.93; 95% CI: 12.9-100; p<0.001), and Singapore (OR = 14.48; 95% CI: 4.78-43.8; p<0.001). Although the p-value was close to 0.05, collaborative school culture was not statistically significant in the U.S. at p<0.05 level (OR = 8.98; 95% CI: 0.96-83.8; p=0.054). Also, school-level decisions (DC) in the U.S. was not statistically significant anymore, whereas in the other three countries there was still a statistically significant positive association with a teacher’s perception of the current school to be a good place to work. The magnitude was the largest in Singapore (OR = 6.061; 95% CI: 1.96-18.7; p<0.001).
Table 4-4. HGLM Analysis of Whether or Not Teachers Feel Their School as a Good Place to Work and Three Professional Capital Components in Case 2: Collaborative School Culture as Social Capital

<table>
<thead>
<tr>
<th></th>
<th>Finland</th>
<th>Japan</th>
<th>Singapore</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff. (S.E.)</td>
<td>Odds ratio</td>
<td>Coeff. (S.E.)</td>
<td>Odds ratio</td>
</tr>
<tr>
<td>For INTRCPT 1: $\beta_0$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HC: teacher efficacy, $Y_{01}$</td>
<td>0.030 (0.174)</td>
<td>1.031</td>
<td>0.208 (0.136)</td>
<td>1.231</td>
</tr>
<tr>
<td>SC2: collabor. sch. culture, $Y_{02}$</td>
<td>2.529*** (0.579)</td>
<td>12.54</td>
<td>3.581*** (0.519)</td>
<td>35.93</td>
</tr>
<tr>
<td>DC: school-level decisions, $Y_{03}$</td>
<td>1.728** (0.627)</td>
<td>5.631</td>
<td>0.925** (0.355)</td>
<td>2.521</td>
</tr>
<tr>
<td>% of students disadv., $Y_{04}$</td>
<td>0.003 (0.008)</td>
<td>1.003</td>
<td>-0.004 (0.007)</td>
<td>0.996</td>
</tr>
<tr>
<td>Student-teacher ratio, $Y_{05}$</td>
<td>-0.046 (0.056)</td>
<td>0.955</td>
<td>0.000 (0.001)</td>
<td>1.000</td>
</tr>
<tr>
<td>School size (1/100), $Y_{06}$</td>
<td>0.108 (0.067)</td>
<td>1.114</td>
<td>-0.007 (0.023)</td>
<td>0.993</td>
</tr>
<tr>
<td>INTRCPT2, $Y_{00}$</td>
<td>2.822*** (0.366)</td>
<td>16.81</td>
<td>0.661*** (0.162)</td>
<td>1.937</td>
</tr>
<tr>
<td>For “individual teacher efficacy” slope: $\beta_1$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{10}$</td>
<td>0.125* (0.059)</td>
<td>1.133</td>
<td>0.074* (0.032)</td>
<td>1.076</td>
</tr>
<tr>
<td>For “female” slope: $\beta_2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{20}$</td>
<td>-0.419 (0.223)</td>
<td>0.658</td>
<td>-0.179 (0.115)</td>
<td>0.836</td>
</tr>
<tr>
<td>For “permanent employment status” slope: $\beta_3$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{30}$</td>
<td>-0.489 (0.301)</td>
<td>0.613</td>
<td>-0.096 (0.155)</td>
<td>0.908</td>
</tr>
<tr>
<td>For “years of teaching at the school” slope: $\beta_4$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTRCPT2, $Y_{40}$</td>
<td>-0.012 (0.013)</td>
<td>0.988</td>
<td>0.003 (0.011)</td>
<td>1.003</td>
</tr>
</tbody>
</table>

Final estimation of variance components of INTRCPT, $u_0$

(0) Null model

<table>
<thead>
<tr>
<th></th>
<th>S.D.</th>
<th>Variance comp.</th>
<th>$\chi^2$ (d.f.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.76795</td>
<td>0.58975</td>
<td>227.36*** (145)</td>
</tr>
</tbody>
</table>

(1) Random intercept model

<table>
<thead>
<tr>
<th></th>
<th>S.D.</th>
<th>Variance comp.</th>
<th>$\chi^2$ (d.f.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.02303</td>
<td>0.00053</td>
<td>151.75 (139)</td>
</tr>
</tbody>
</table>

Notes. Weighted. *p<0.05, **p<0.01, ***p<0.001. Population-average model with robust standard errors.
As for the school-level control variables, the percentage of students from economically disadvantaged homes was still statistically significant only in the U.S., and its magnitude was consistent (OR = 0.973; 95% CI: 0.96-0.99; p<0.01) as seen in Case 1. In Singapore, the coefficient for student-teacher ratio remained negative but was not statistically significant. Finally, regarding the teacher-level control variables, individual teacher efficacy was still statistically significant, and its direction of the relationship was positive in all the countries. The magnitude was the largest in the U.S., and the odds ratio indicates that one unit increase of individual teacher efficacy is associated with 23.1% increase in the likelihood a teacher perceives the current school to be a good place to work in the U.S. (OR = 1.231; 95% CI: 1.12-1.36; p<0.001). The same patterns as Case 1 were seen as for permanent employment status; it was negatively associated with the outcome in Singapore at p<0.001 level, whereas it was positively associated with the outcome in the U.S. at p<0.05 level. Especially in the U.S., being a permanent employee is associated with 56.5% increase in the likelihood a teacher perceives the current school to be a good place to work (OR = 1.565; 95% CI: 1.05-2.33; p<0.05).
Chapter 5

Summary and Discussions

Using TALIS 2013, this study explored the concept of professional capital by Hargreaves and Fullan (2012) in the U.S., Finland, Japan, and Singapore by examining professional capital components and how these components are related to teacher perception that their school is a good place to work. As shown in the introduction, teachers in many advanced nations suffer from overwork and less professional autonomy in need to focus heavily on increasing student accountability based on standardized test scores. The TALIS 2013 data shows in 25 out of 29 countries lower secondary teachers on average disagreed that they think the teaching profession is valued in society. Despite the importance of professionalization of teaching, the current policy rhetoric especially in the U.S. is perceived as weakening the professional status of teaching. To address this issue, the current study utilized the theoretical framework of professional capital by Hargreaves and Fullan (2012) and examined school-level professional capital components in the U.S., Finland, Japan, and Singapore.

This chapter first summarizes the empirical findings of the study. It then uses the comparative findings to highlight potential areas of focus for education policy in the U.S. It emphasizes the importance of collaborative school culture to establish teaching as a profession; however, the HGLM results indicate that above all poverty may be the first and most significant hurdle to overcome in order to nurture professional capital at a given school in the U.S. Focusing on the two cases of social capital components among the four countries, the HGLM results would imply that policy makers and school administrators may need to pay closer attention to the conflict between individual excellence and collaborative culture in order to consider how to build and enhance a collaborative structure and atmosphere at a given school in the U.S. This chapter then provides policy implications regarding nurturing and strengthening the U.S. current teaching
workforce by maximizing school-level professional capital in the long run. Finally, technical concerns and limitations for the operationalization, measurement, and interpretation of professional capital components for cross-national analyses as well as further directions for research are discussed.

Summary of the findings

Descriptive statistics shows some cross-national differences in the outcome variable and the three professional capital components. The percentage of teachers who perceive their school as a good place to work was relatively high in Finland and the U.S. Regarding the professional capital components, the U.S. was an outliner among the four countries: The values of the social capital and decisional capital components were consistently lower than those in the other three countries. There was not a large difference in teacher co-operation (SC1), which refers more to a structure of teacher collaboration at a given school, among all the countries, however, there were rather startling differences in SC2 (M=0.68) and DC (M=0.67) of the U.S. compared to Finland (SC2: M=0.80; DC: M=0.76), Japan (SC2: M=0.83; DC: M=0.77), and Singapore (SC2: M=0.82; DC: M=0.75). Singapore has consistently higher values for all the professional capital components. At both teacher and school levels, teacher efficacy was high in the U.S. and low in Japan. This may highlight the difference in social construction of the self: Whereas Americans appreciate one’s difference from others and tend to see themselves positively, Japanese appreciate the harmony of interdependence and tend to evaluate themselves less than others (cf. Markus & Kitayama, 1991). The high value of HC and low values of SC2 and DC in the U.S. altogether may indicate that in the U.S. schools individual classroom management and instructional practices may be more focused on than school-level collaborative culture and teachers’ involvement in school-level decision-making processes. Lastly, among the controls variables, the
school-level average percentage of students from disadvantaged homes was stunningly high in the U.S. compared to the other three countries.

To examine difference in the proportion of the between-school variance of the three professional capital components across the four countries, the ICCs of the three professional capital components were calculated. In all the countries, the ICCs show little variation in school-level human capital component within country. However, for two social capital and one decisional capital components, there exists between-school variance in Finland, Japan, and the U.S. In Singapore, all the professional capital components had high values but little variation between schools, illustrated by a consistent pattern of high professional capital components in Singapore. Meanwhile, the high between-school variation in teacher co-operation, the structural feature of social capital, in the U.S. may indicate that the frequency of teachers’ exchange and coordination for teaching and their professional collaboration significantly varies across schools. Also, combined with the finding that the U.S. had the lowest score of SC2 among these four countries, the low between-school variance indicates that there is consistently a low collaborative school culture across schools in the U.S. Since descriptive statistics show that 85% of teachers agreed with their school as a good place to work in the U.S., which is close to that of Finland (88%) and higher than that of Japan (62%) and Singapore (73%), the findings altogether may imply the existence of the conflict between individual excellence and collaborative culture. That is, for teachers in the U.S., the condition to perceive their school as a good place to work might be related more to how much a given teacher can do what one needs to do by oneself.

In response to RQ 2, two patterns of HGLM were conducted: The first case was teacher co-operation as social capital, and the second case was collaborative school culture as social capital. Table 5-1 below summarizes the significance and directions of the associations of the key variables with the outcome variable.
As shown in Table 5-1, there was a distinct difference in the results between SC1 and SC2. According to Hargreaves and Fullan (2012), both are conceptually critical factors to construct professional capital. However, the results show that SC1 was not statistically significant in all four countries. Meanwhile, SC2 was statistically significant in Finland, Japan, and Singapore, however, it was not statistically significant in the U.S. Conceptually, SC1 reflects more a specific structure of teacher collaboration focusing on collaborative instructions and teaching, and SC2 reflects more a holistic aspect of collaboration at a given school. One explanation is that there is a possibility that SC1, teacher co-operation, can be either an imposed structure from the top down or an organic structure from the bottom up. Whereas an imposed structure can mandate such activities to teachers, an organic structure can emerge to create an active support network among teachers. Although there exists a teacher co-operation structure at a given school, it might not necessarily be supportive for teachers if it is imposed from the top down. In order to make it work, it is critical to seek the balance between the role of administration and teachers so that the structure of teacher co-operation can help invigorate Professional Learning Communities (PLC) and maximize their effect on accountability of the school as a
whole. Furthermore, seeing the U.S. as an outlier, there is also a possibility that the structure of teacher co-operation may hinder individual teachers’ pursuit of their excellence in classroom teaching. Although the variable of teacher co-operation cannot detect these differences, this might help explain the lack of statistically significant association between teacher co-operation and teacher perception of their school as a good place to work.

Meanwhile, teacher perception that there is a collaborative school culture characterized by mutual support was statistically significant and positively associated with the outcome variable in Finland, Japan, and Singapore. In the U.S., although the significance was close to p<0.05, it was not statistically significant. This suggests that there may be some issues to be considered on the potential conflict between individual excellence and collaborative culture. Based on the literature reviewed in Chapter 2, research in the U.S. supports the significance of teacher collaboration and professional learning communities on student outcomes. However, it is critical to make sure that principals, teachers, and school staff perceive, understand, and interpret the creation of such PLC as beneficial. In this sense, the pursuit of individual excellence, especially promoted by a rewards-based system of teacher evaluation (e.g. merit pay), may actually hinder the enhancement and development of social capital that are needed to elevate teaching to the status of a profession.

Based on the results of the other three countries, it seems that teacher perceptions of their school as a good place to work is significantly related to the presence of a collaborative school culture. Whereas teachers in Finland, Japan, and Singapore see the value of collaboration, it seems teachers in the U.S. might not see the same value. However, when as the U.S. attempts to build a strong and highly qualified teaching workforce for the long run, enhancing professional capital may be one of the best strategies to empower the current teaching workforce and raise the professionalization of teaching. The results of the current study suggest some potential reasons that may explain the U.S. difference from the other three countries. One would be the conflict
between individual merit and collaborative culture discussed above, and another may be the structure of classrooms and schools. As shown in the brief overview of teaching as a profession in Japan, the existence of *shokuin shitsu* (a large room where teachers have desks for work other than teaching) plays a major role for teachers to collaborate because it is a loci of communication. The “egg crate” nature of school organization in the U.S. makes each classroom independent from others, and teachers independently work in their own classroom. Combined with the literature review above, the HGLM results may indicate policy makers and school administrators may need to pay closer attention to these factors when considering how to build and enhance collaborative school culture in the U.S.

The HGLM results also indicate that in the U.S. poverty can be one of the most significant hurdles that teachers need to overcome in order to perceive their school as a good place to work. The average percentage of students from disadvantaged homes is more than 40% in the U.S. (cf. Table 4-1), and the negative association between the percentage of students from economically disadvantaged homes and teacher perception of their school as a good place to work was consistent and statistically significant only in the U.S. (cf. Table 5-1). Poverty indeed affects many of the U.S. teachers’ perception of their school as a good place to work. As much research shows, poverty brings a lot of intertwined issues to school (e.g. Kozol, 1991; Lareau, 2011; Putnam, 2015; Reardon, 2012). Not only do schools in poverty suffer from the lack of material resource, such as textbooks, pencils, opportunities to go to field trips, but poverty also fosters the lack of parental involvement, children’s tardiness and hygiene issues, to name a few. Additional support according to each school’s condition will be helpful for the current teaching workforce to strive to support their students in various ways.
Policy implications

Based on the results of this study, 3 policy implications are clear for U.S. schools.

*Re-conceptualizing teaching as a unique profession compared to other professions.*

Utilizing the concept of professional capital, the current study emphasizes the importance of collaborative school culture to raise the professionalization of teaching and implies the existence of conflict inherent in the U.S. education system that rhetorically contrasts and opposes individual excellence and collaborative activities. As shown in Chapter 2, a profession with theorized and abstract knowledge as well as technical autonomy and discretionary judgment may seem unnecessary to collaborate within the profession because of the image that each professional can make proper diagnoses and judgments under unforeseen situations. However, the current study implies that we may need to situate teaching as a unique profession. Building collaborative school culture should never mean that an individual teacher is too weak to be a professional. Rather, teaching is a profession which requires comprehensive but versatile teaching workforce through collaborative school culture, in order to deal with diverse, time- and context-sensitive issues for the pursuit of the public good.

That is, collaboration as professionals does not mean that individual teachers are powerless. However, teacher reforms too much emphasizing individual excellence and merits can impede the rise of professionalization of teaching because individual competitiveness may hinder this unique aspect of teaching as profession. In this sense, the current education policies may need to re-conceptualize teaching as a unique profession and invest to build collaborative culture as the center of schooling. Policy makers and school administrators can also seek and provide appropriate support to enhance collaborative school culture based on the needs of different schools under different conditions. Universal support mandated in a top down fashion, such as providing mandatory professional development for teacher collaboration, could make matters
worse. Policy makers and school administrators need to focus on teacher voice on how to actually make it beneficial for teachers to build a collaborative culture at a given school.

*Poverty matters.* The descriptive statistics of this study show that the average percentage of students from economically disadvantaged homes was much higher in the U.S. than in Finland, Japan, and Singapore. The HGLM results show that there was a significantly negative association of poverty and teachers’ individual perception of their school to be a good place to work only in the U.S. In order to empower the current teaching workforce to develop school-level professional capital at each school, poverty can be one of the most significant hurdles that teachers could do nothing about. Seeing the construction of strong professional capital as long-term capacity building, we need to consider how to provide comprehensive support, especially for schools in poverty. Without such additional support based on each school’s condition, the current teaching workforce might not be able to get actively engaged in enhancing professional capital because of their overloaded work to deal with various issues triggered by poverty.

*Balancing policies between individual excellence and collaborative culture.* The HGLM results give some insights that suggest that a good place to work for teachers might not necessarily be the same in the U.S., Finland, Japan, or Singapore. For example, if a school places heavy emphasis on individual excellence as part of the school’s strategy to empower teachers, a good school for teachers may be a place where individual excellence would be fully evaluated and rewarded. The data from TALIS 2013 cannot well detect the subtle ways that in which a good school is socially constructed and varies across countries. However, as shown in Chapter 2, much research shows benefits of having collaborative support network (e.g. Baker-Doyle, 2011; Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Gamoran, Secada, & Marret, 2007). Previous studies found that strong correlations between professional learning communities (PLC) and teaching practices that predict student learning gains, as well as correlations between PLCs and some student experiences at school (McLaughlin & Talbert, 2006). However, research also shows
that even well-structured PLCs oftentimes focus heavily on discussing student test scores, and it does not well foster collaborative learning for teachers (Berry, 2015; Talburt, 2010). The concept of professional capital is a strategy of teachers, for teachers, by teachers not only to empower themselves, but also to gain, store, develop, and utilize the school-level capital on a long-term basis, which will lead to professionalization of teaching. One of the critical factors for policy makers and school administrators to consider may be balancing policies between embracing individual excellence and enhancing collaborative school culture.

As discussed in Chapter 2, a well-established PLC based on strong trust among principals, teachers, and school staff can enhance a healthy competition for their school to become better. Such a competition could also spur the power of collaboration. Attached with treating all the team members as professionals, cultivating collective responsibility and believing the power of the team can pave a way to raise the professionalization of teaching. Then, individual excellence would not be gone because different characteristics and different talents can be a great example for students to see various potentials in themselves. By keeping the balance between individual excellence and collaborative culture, individual excellence can be the essential piece that such an organic structure needs to shape schooling in the future.

**Limitations and further directions for research**

There are some technical limitations involved in the current study. For example, although running the same HGLM model across the countries made it possible to see cross-national differences in the magnitude of associations of explanatory variables with a focused outcome, it may be possible that different countries have different factors that explain teacher perceptions of their school as a good place to work. The current study did not detect these country-level factors using the HGLM models. Also, variables used in the current study can only capture a snapshot of
the entire sphere of professional capital and its influence. As shown above, the concept of professional capital by Hargreaves and Fullan (2012) describes various aspects of the three professional capital components. However, international large-scale datasets provide only limited measures to operationalize specific theoretical concepts (cf. Akiba, LeTendre, & Scribner, 2007). As briefly described in Chapter 1, the questionnaire to assess professional capital at a given school has been developed by Hargreaves and Fullan (2015). As more small-scale reports from schools accumulate, this will provide empirical guidance for the further discussion of the conceptualization and operationalization of professional capital and its development within a cross-national assessment.

Future research could take several directions. One direction would be to connect the three professional capital components to student outcomes. Based on the current availability of the data, this type of study may need to focus on a single country. As for the U.S., the High School Longitudinal Study of 2009 (HSLS:09), a nationally representative dataset by the National Center for Education Statistics (NCES), may be a resource to examine the linkage between the three professional capital components and student outcomes. Structural Equation Modeling (SEM) makes it possible to examine the direct and indirect relationships between latent explanatory variables (i.e. professional capital components) and latent student outcomes (e.g. composite variable of various outputs of student learning). Furthermore, SEM analyses can explore what are the determinants of professional capital and test especially whether social capital can play a role as a mediator or a moderator of the relationship between the other two professional capital components and outcome variables. Finally, by analyzing longitudinal data of schools in the U.S., another direction of research is to detect the conflict between individual excellence and collaborative culture through the process of enhancing collaboration over time to cultivate professional capital.
References


Appendix A: Descriptive Statistics of Lower Secondary Teachers Perception of “I think that the teaching profession is valued in society” in 29 Countries from TALIS 2013

<table>
<thead>
<tr>
<th>Question</th>
<th>How strongly do you agree or disagree with the statement, “I think that the teaching profession is valued in society”?</th>
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<tr>
<td>Response category</td>
<td>2 = “strongly agree”, 1 = “agree”, -1 = “disagree”, and -2 = “strongly disagree”</td>
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<th>Country</th>
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<th>S.D.</th>
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<td>Singapore</td>
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</tr>
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Appendix B: Correlation Matrix of the Variables Used in the Model (Finland)

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<th>Good school (outcome)</th>
<th>School teacher efficacy</th>
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<th>School teacher efficacy</th>
<th>School teacher co-operation</th>
<th>Collaborative school culture</th>
<th>Collaborative school culture</th>
<th>School-level decisions</th>
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### Appendix C: Correlation Matrix of the Variables Used in the Model (Japan)

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<th>School-level decisions</th>
<th>Teacher efficacy</th>
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### Appendix D: Correlation Matrix of the Variables Used in the Model (Singapore)

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Appendix E: Correlation Matrix of the Variables Used in the Model (U.S.)

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VITA

Sakiko Ikoma

EDUCATION

2016  Ph.D. in Educational Theory & Policy and Comparative & International Education
       Minor: Sociology
       The Pennsylvania State University
2011  M.A. in Sociology & Education
       Teachers College, Columbia University
2000  B.S. in Physics
       Aoyama Gakuin University

AWARDS AND GRANTS

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TECHNICAL QUALIFICATIONS

- Statistical Software: Stata, SPSS, AM, Lisrel, HLM, Mplus, IDB Analyzer, NodeXL
- Data Experience: TIMSS, PISA, TALIS, TEDS-M, WVS, HSLS: 09, NAEP, HSTS, ELS: 2002

SELECTED PUBLICATIONS


SELECTED PRESENTATIONS

